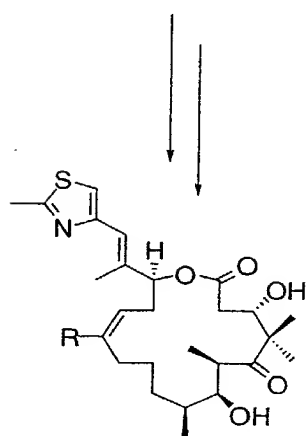
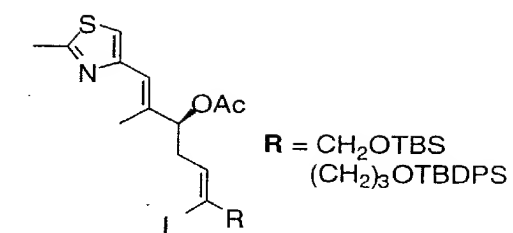
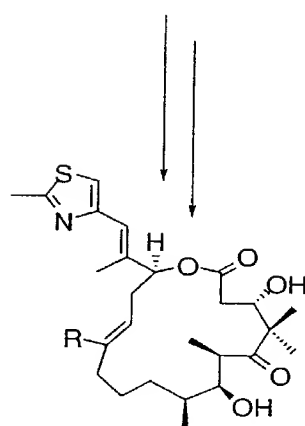
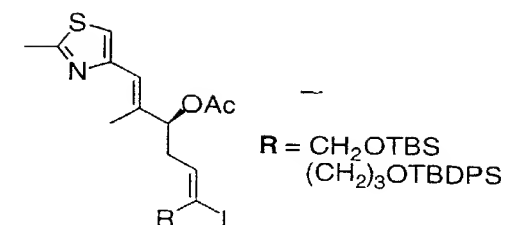
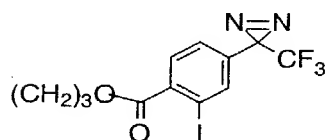
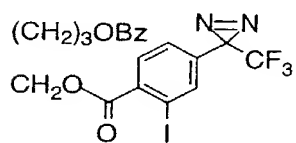


Figure 1



$\text{R} = \text{CH}_2\text{OH}$

$(\text{CH}_2)_3\text{OH}$



$\text{R} = \text{CH}_2\text{OH}$
 $(\text{CH}_2)_3\text{OH}$

Figure 2

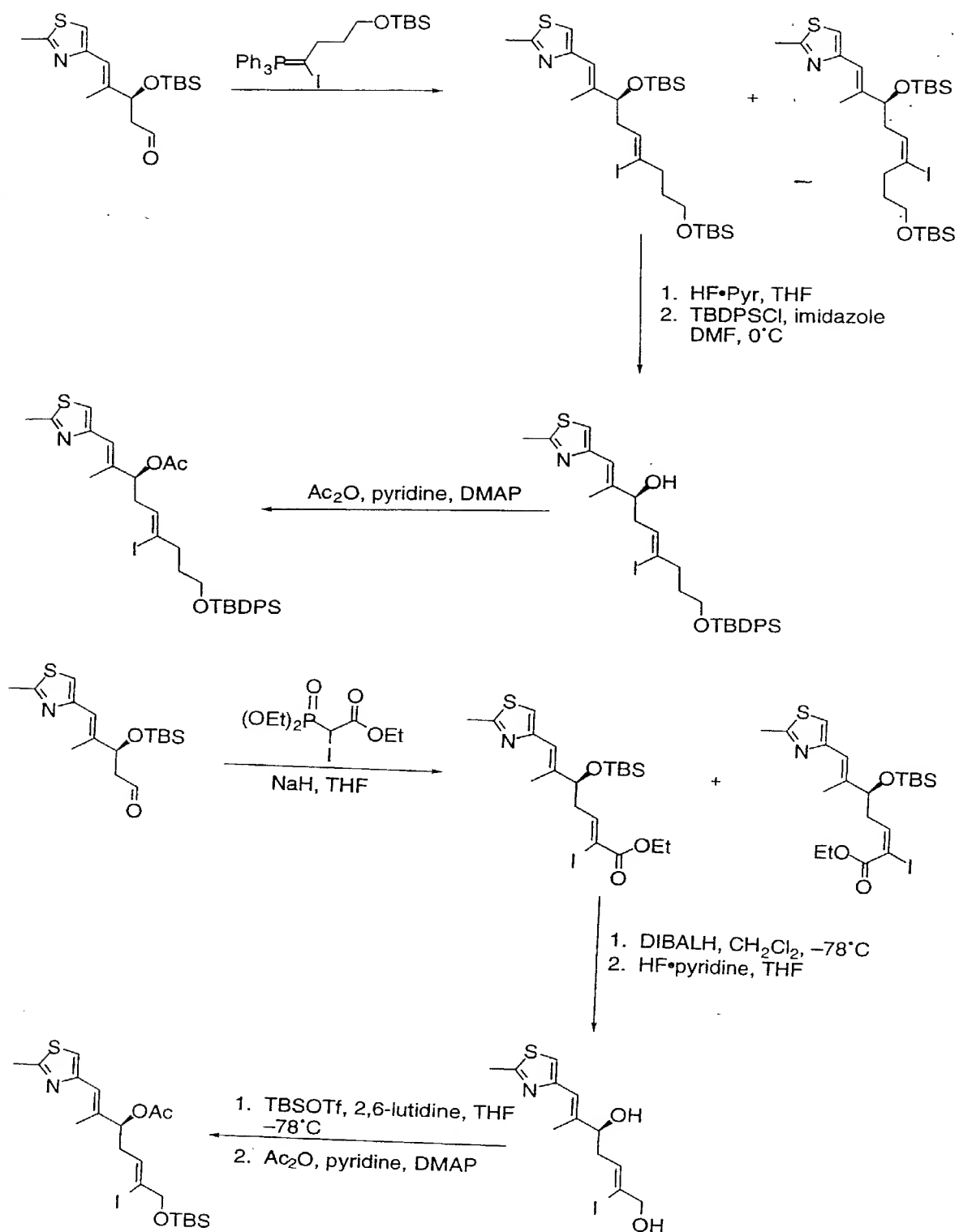


Figure 3(A)

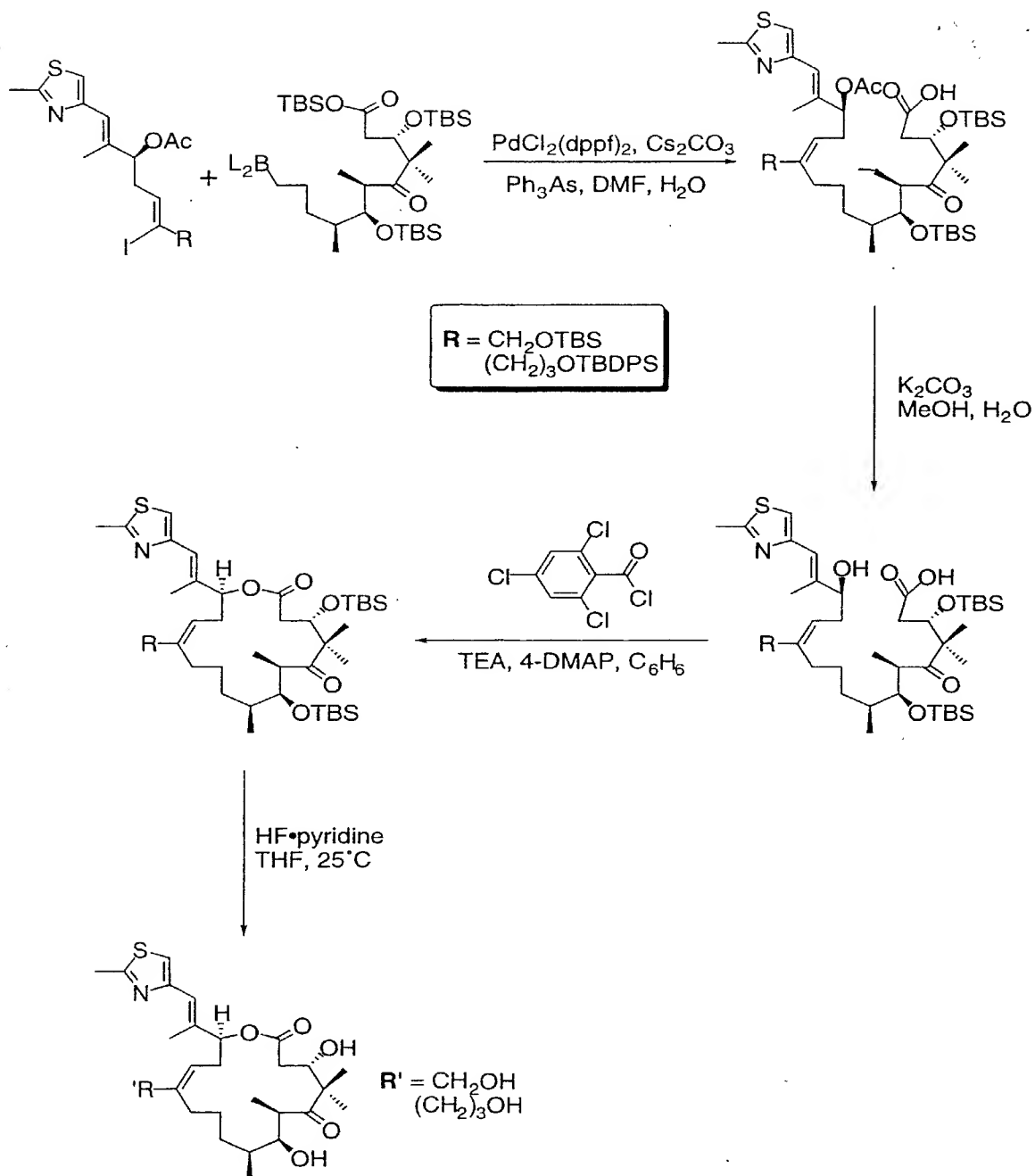


Fig. 3(B)

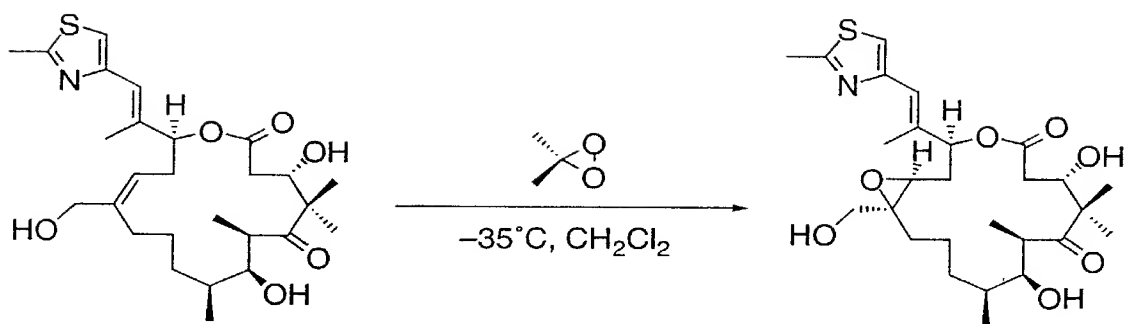
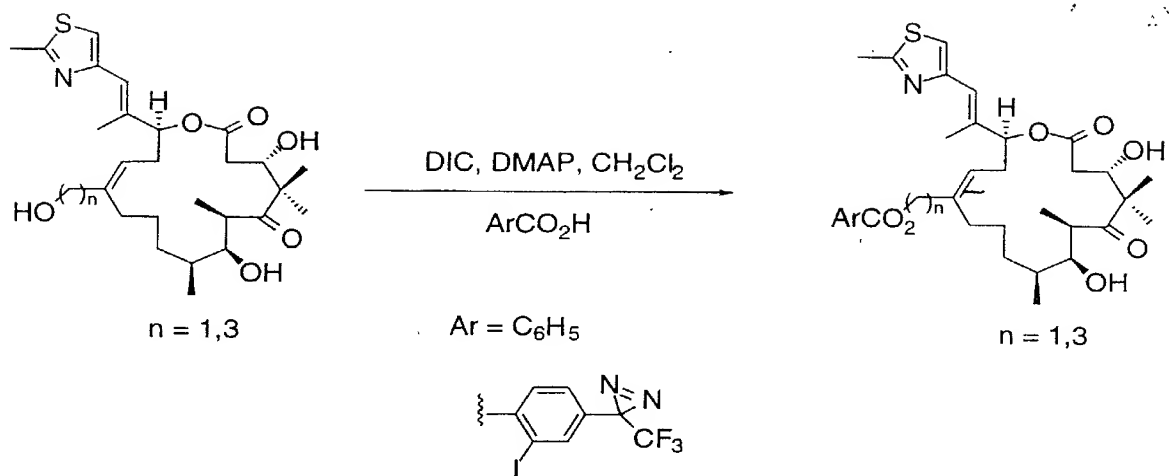


Fig. 3(C)

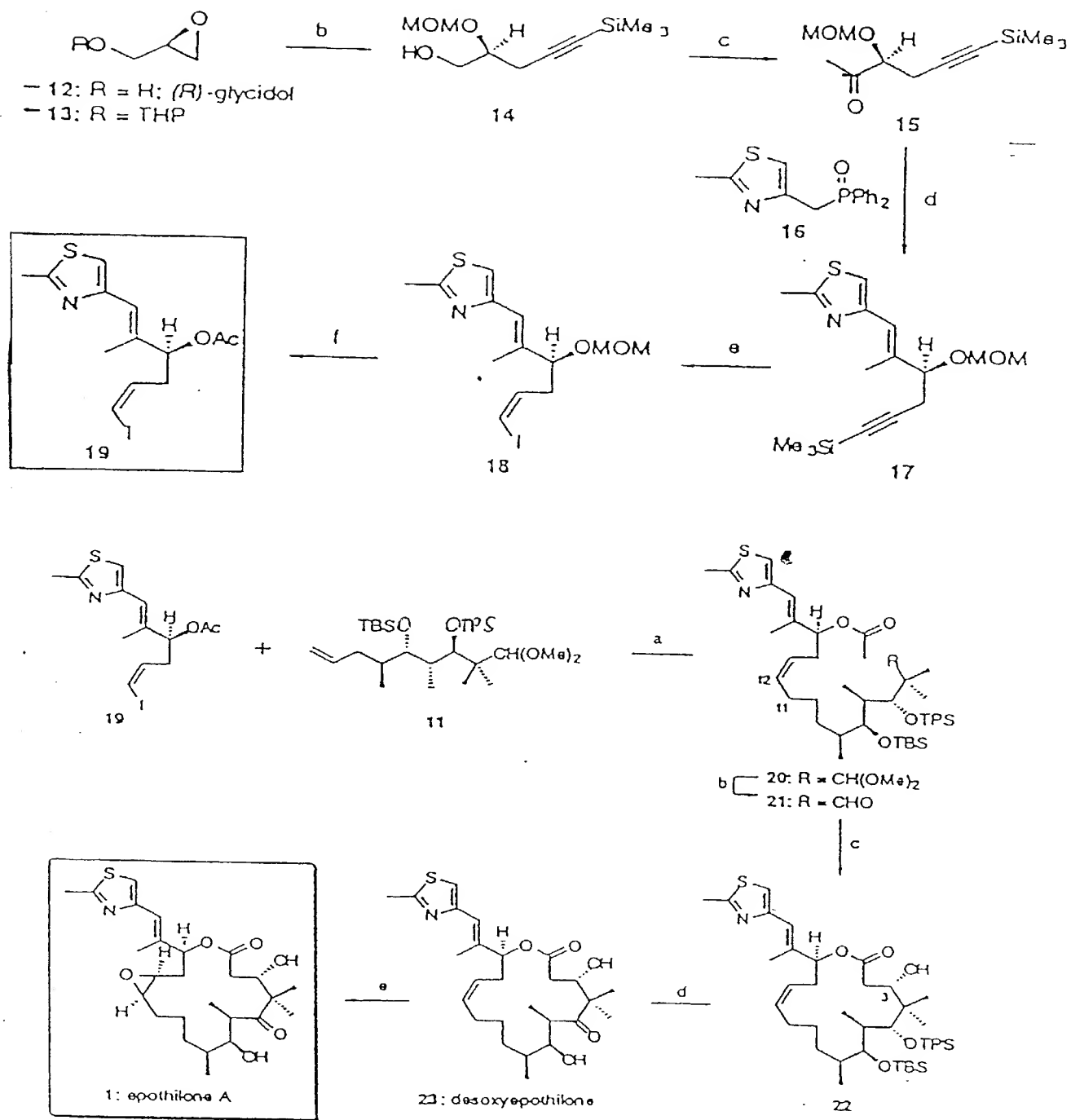


Figure 4

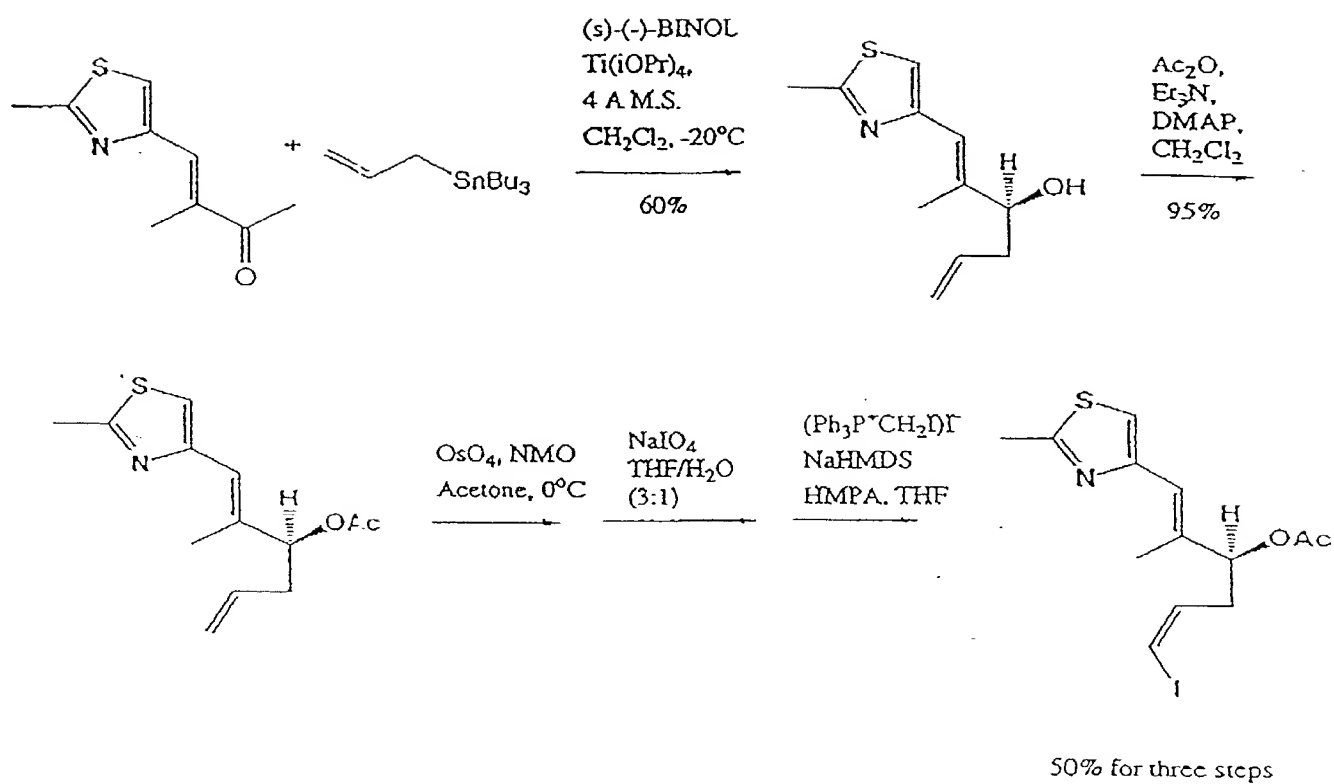
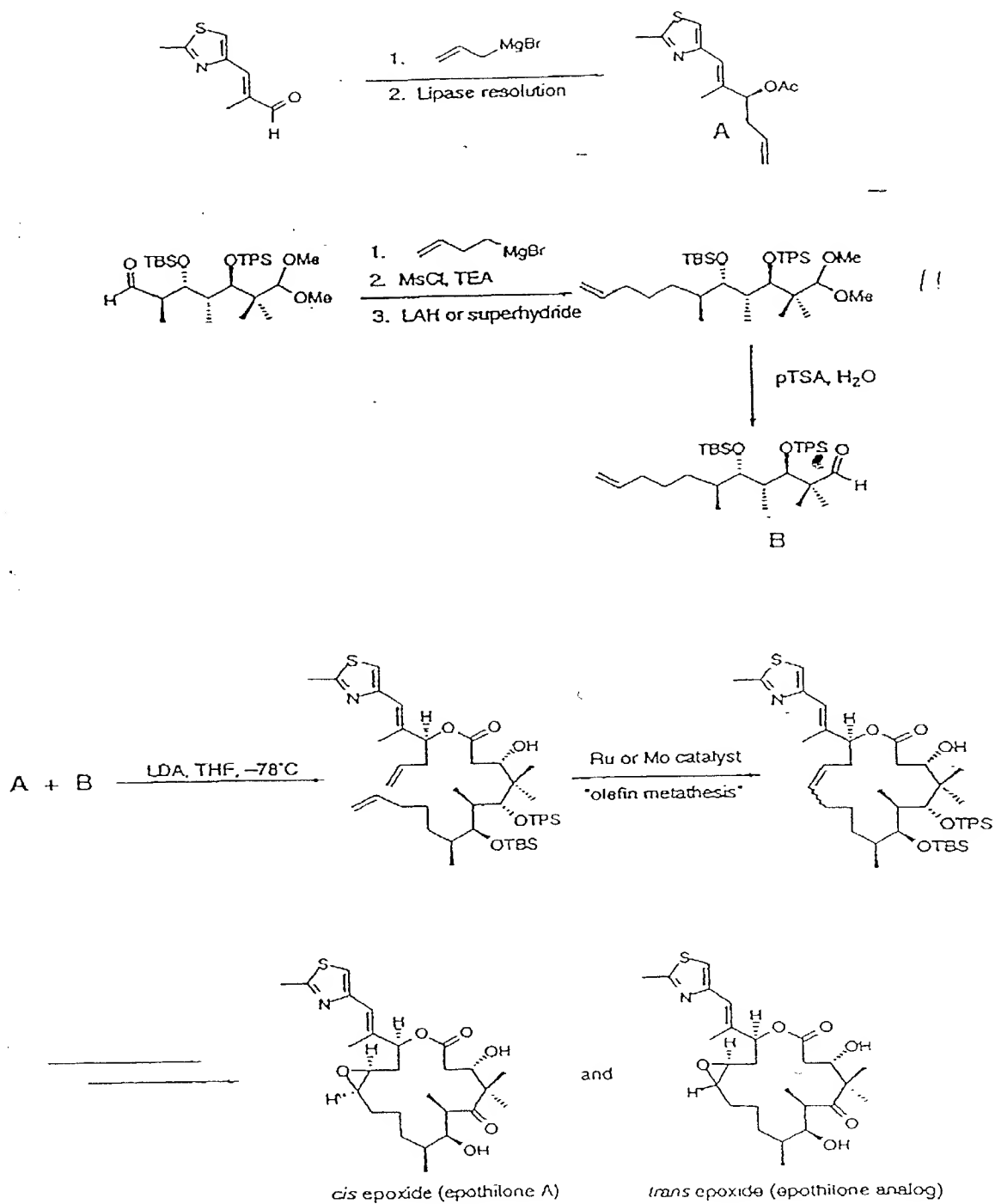
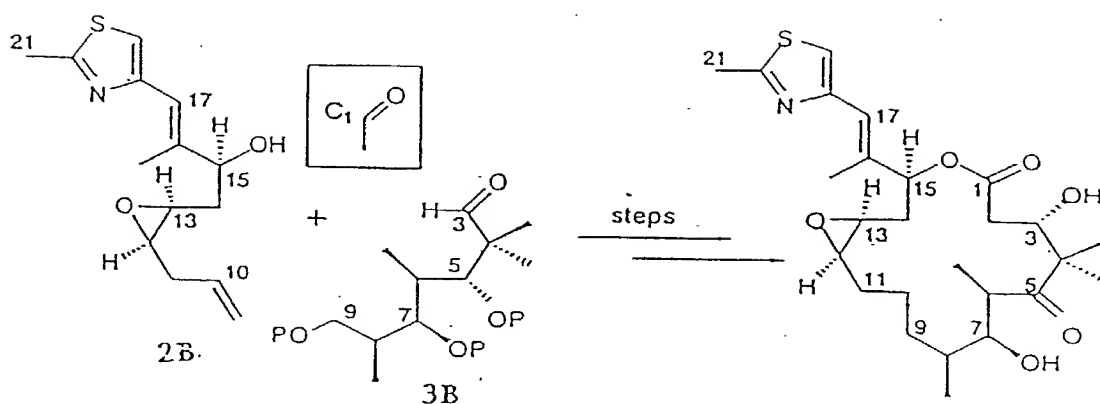


Figure 5



* 17 steps from known starting materials vs. 27 steps for aldol macrocyclization

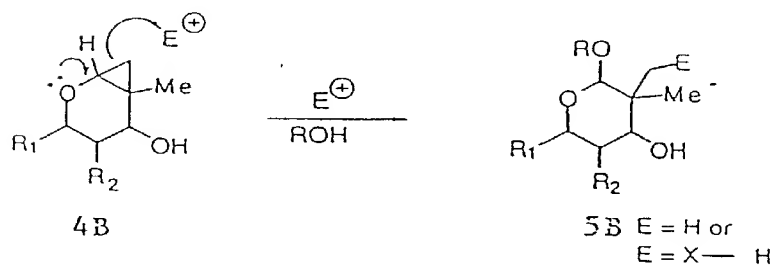
Figure 6



P = unspecified protecting group

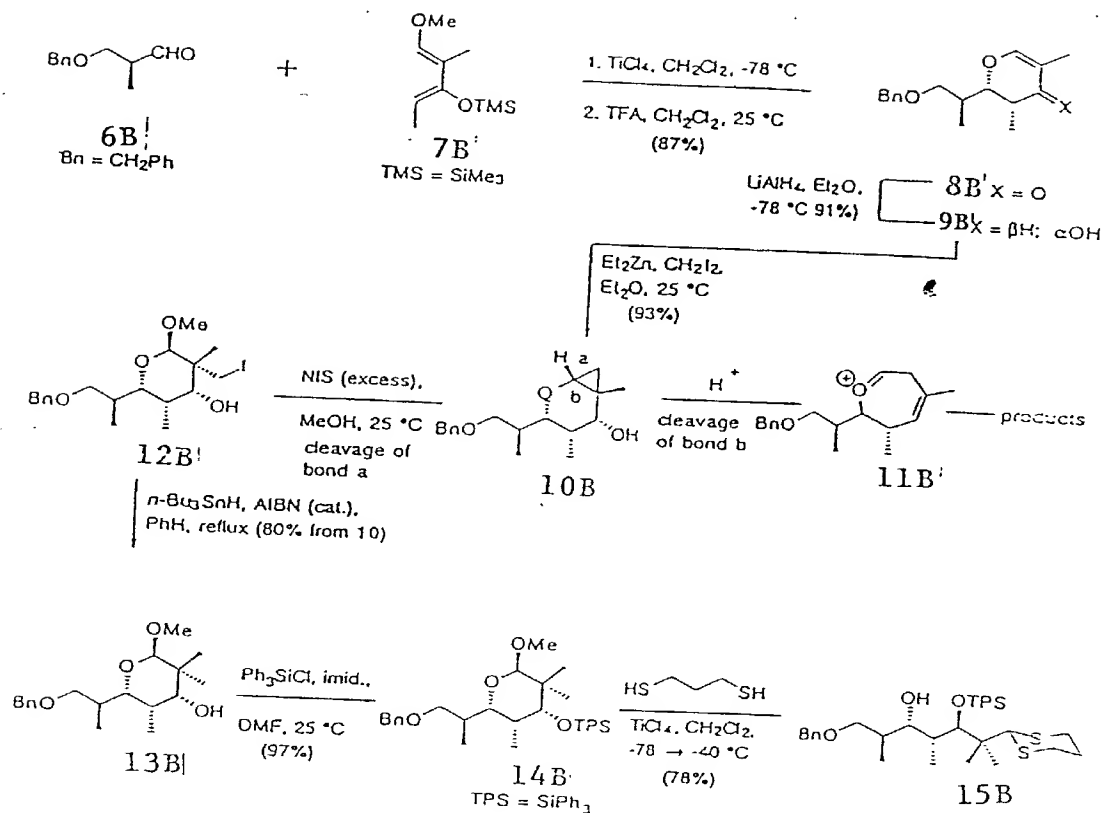
1 : epothilone A

Convergent strategy for a total synthesis of epothilone A (1).



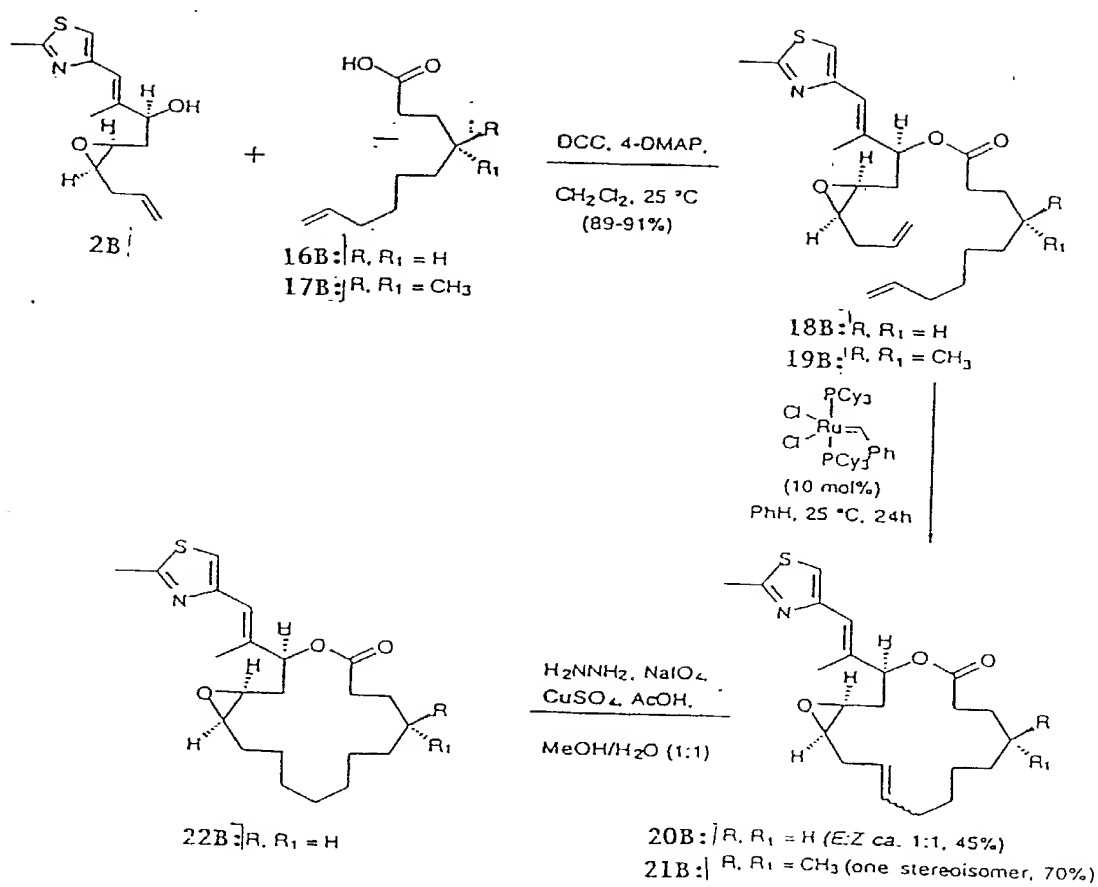
The glycol cyclopropane solvolysis strategy for the introduction of geminal methyl groups.

Figure 7



Enantioselective synthesis of compound 15B

Figure 8



Construction of epothilone model systems 20^B, 21^B, and 22^B by ring-closing olefin metathesis

Figure 9

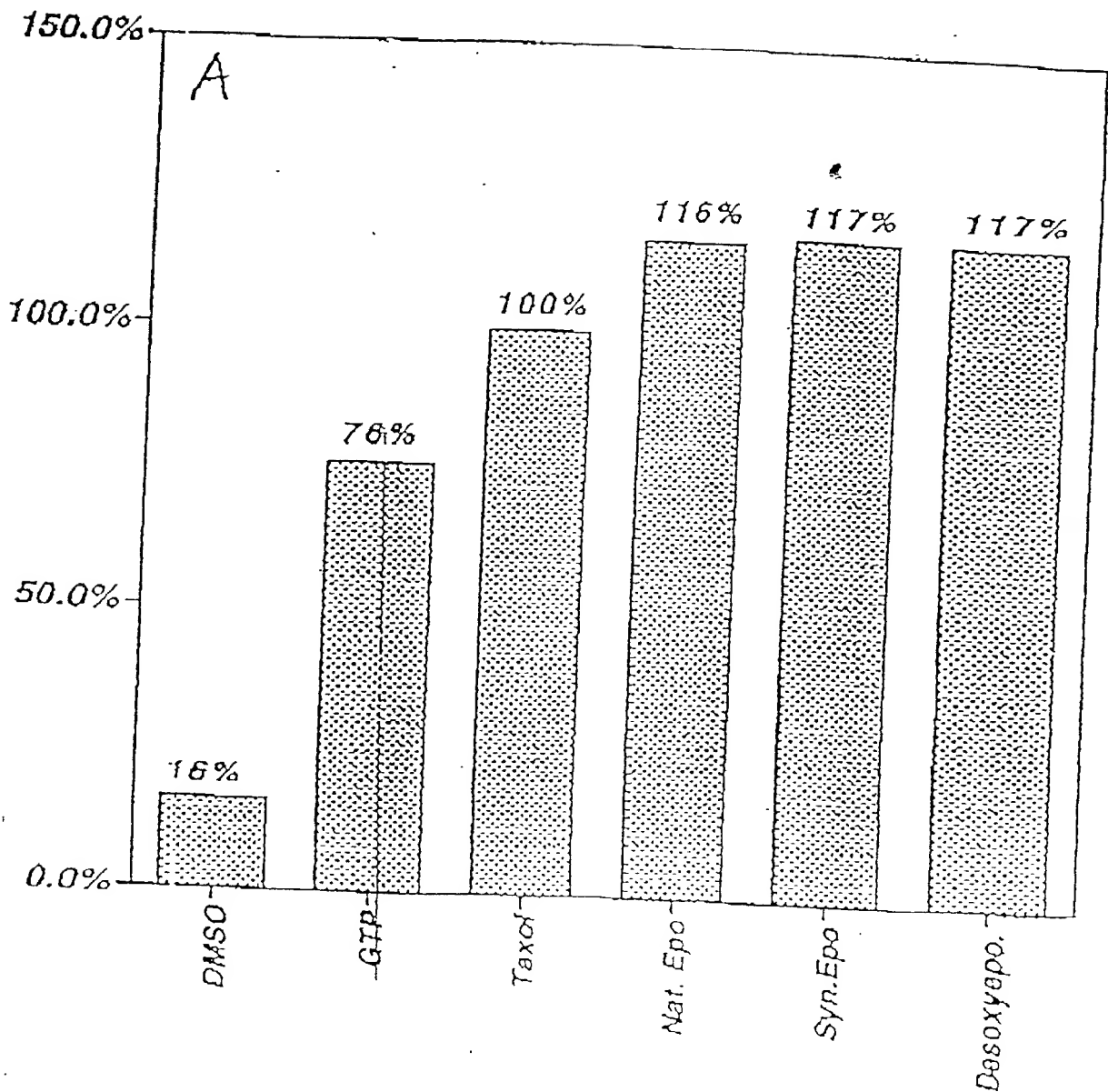


Figure 10

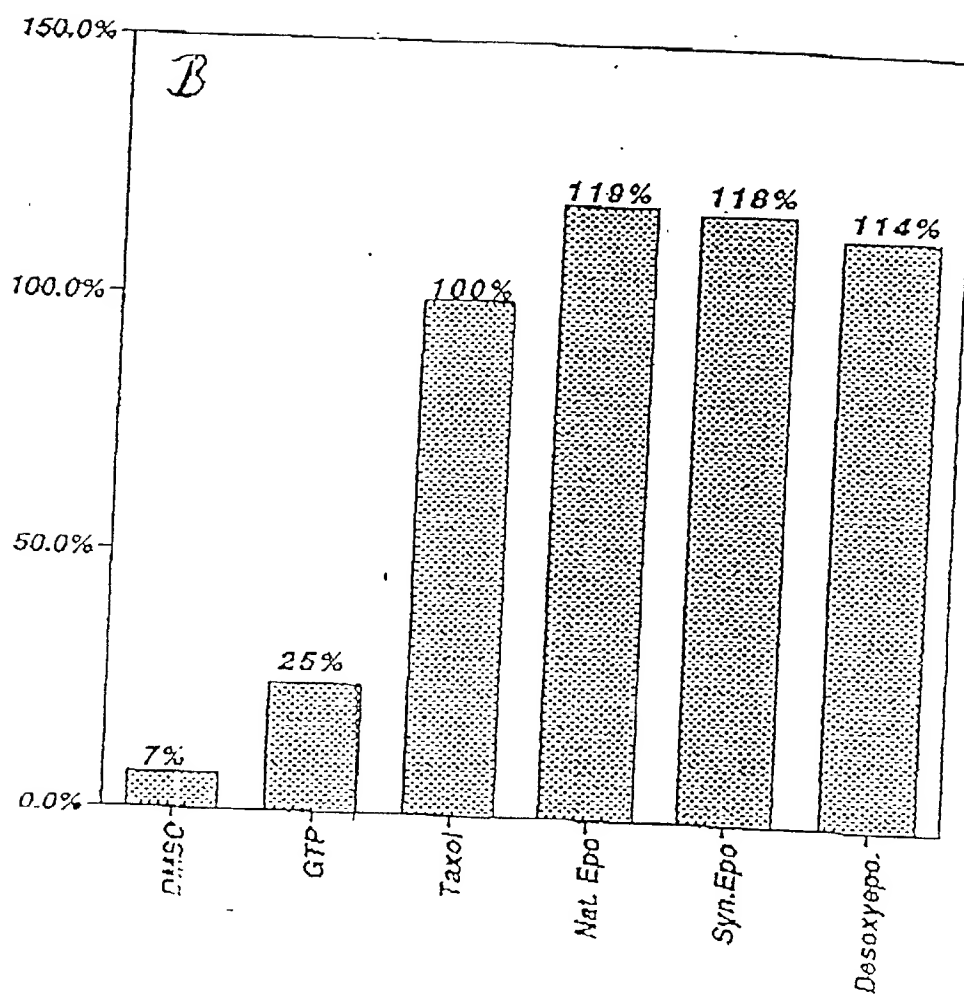


Figure 11

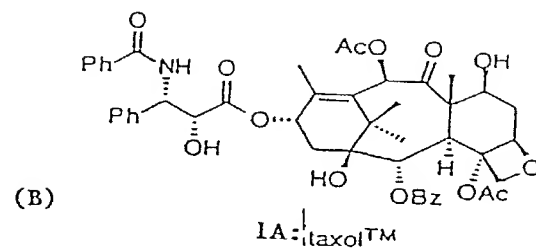
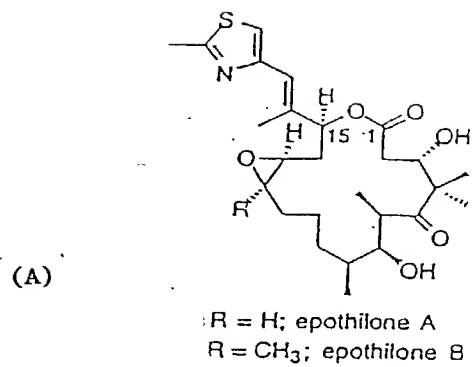


Figure 12

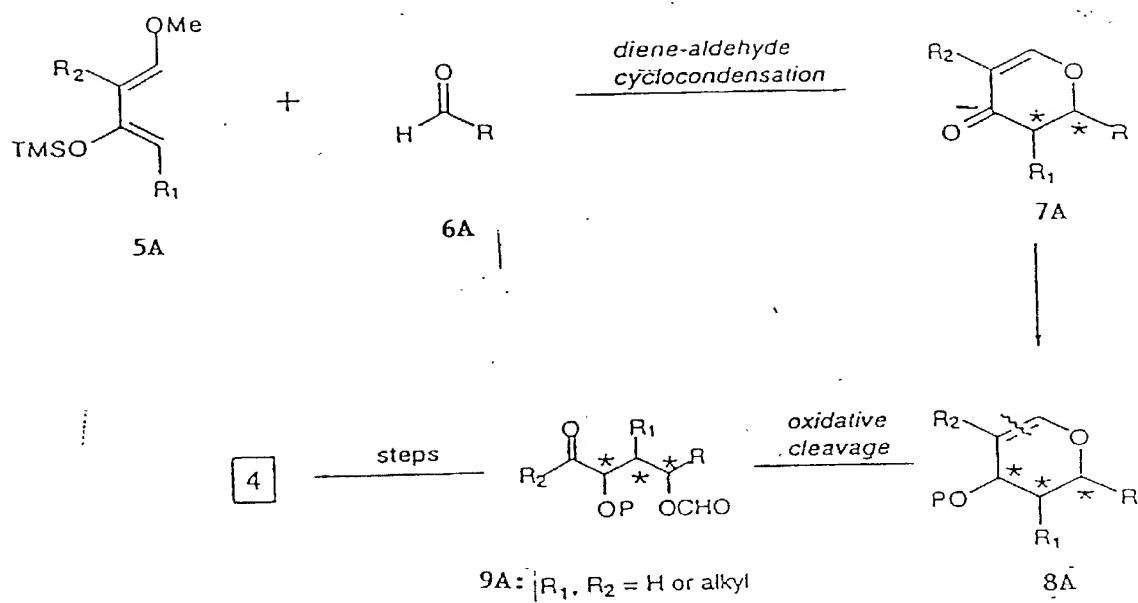


Figure 13

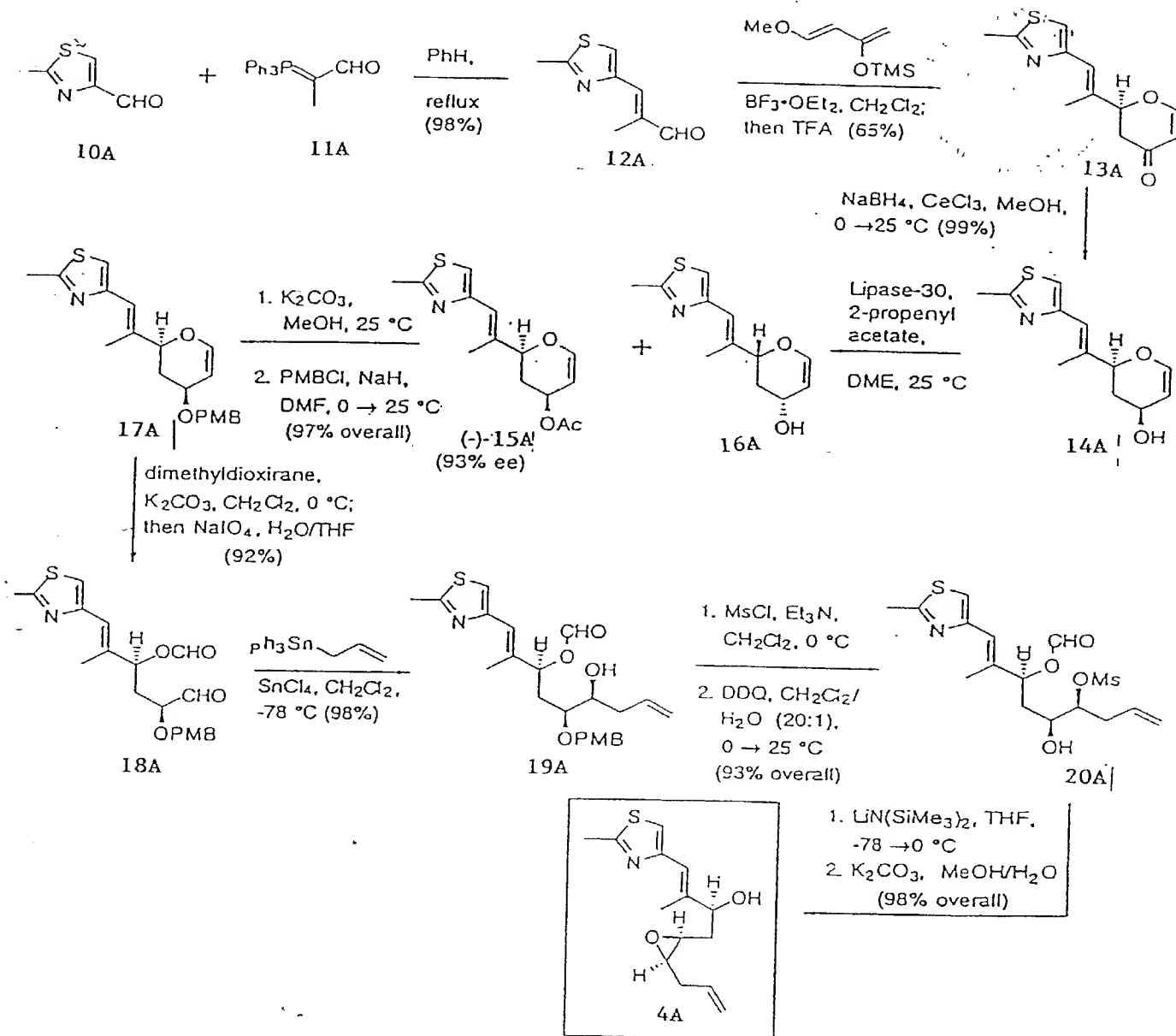


Figure 14

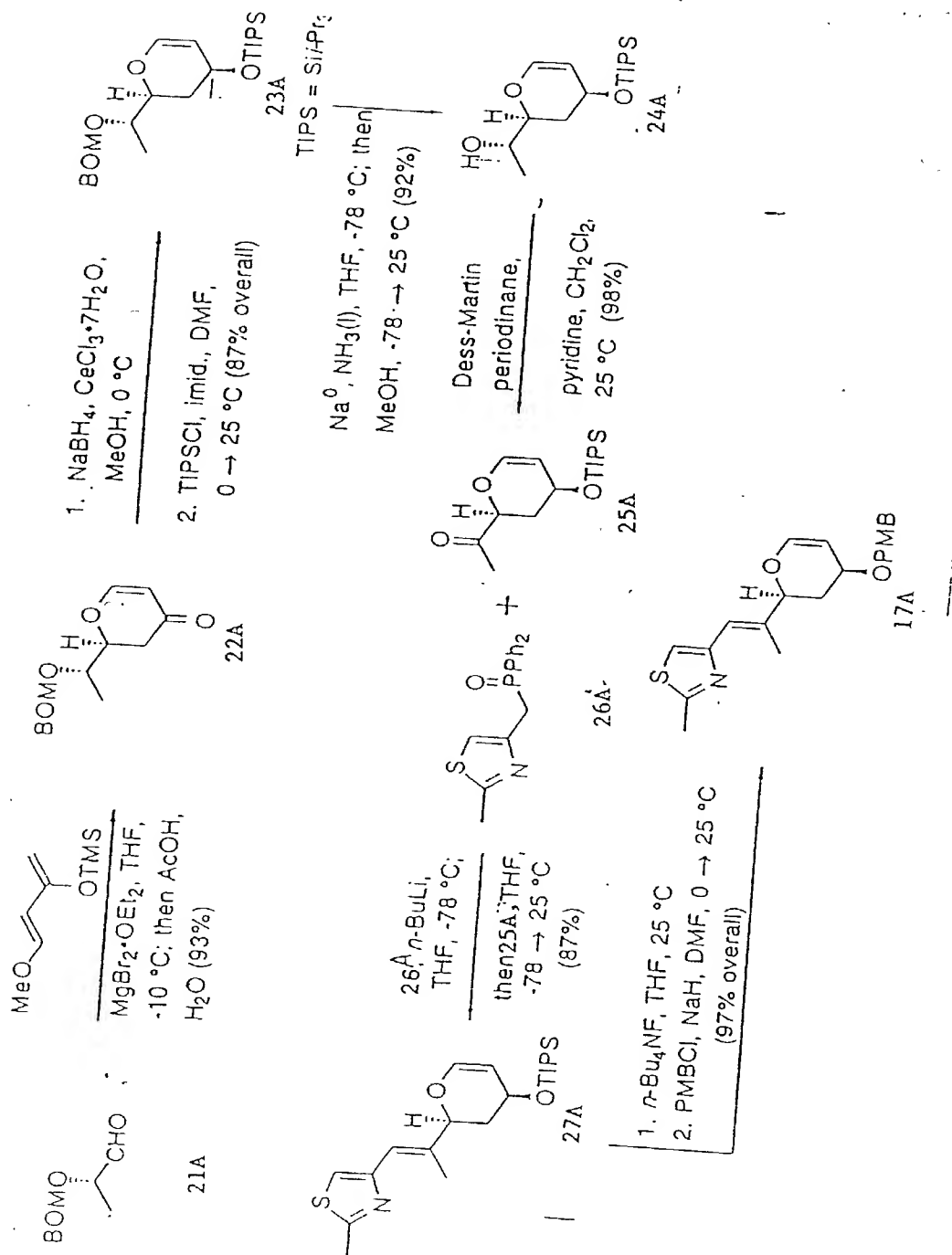


Figure 15

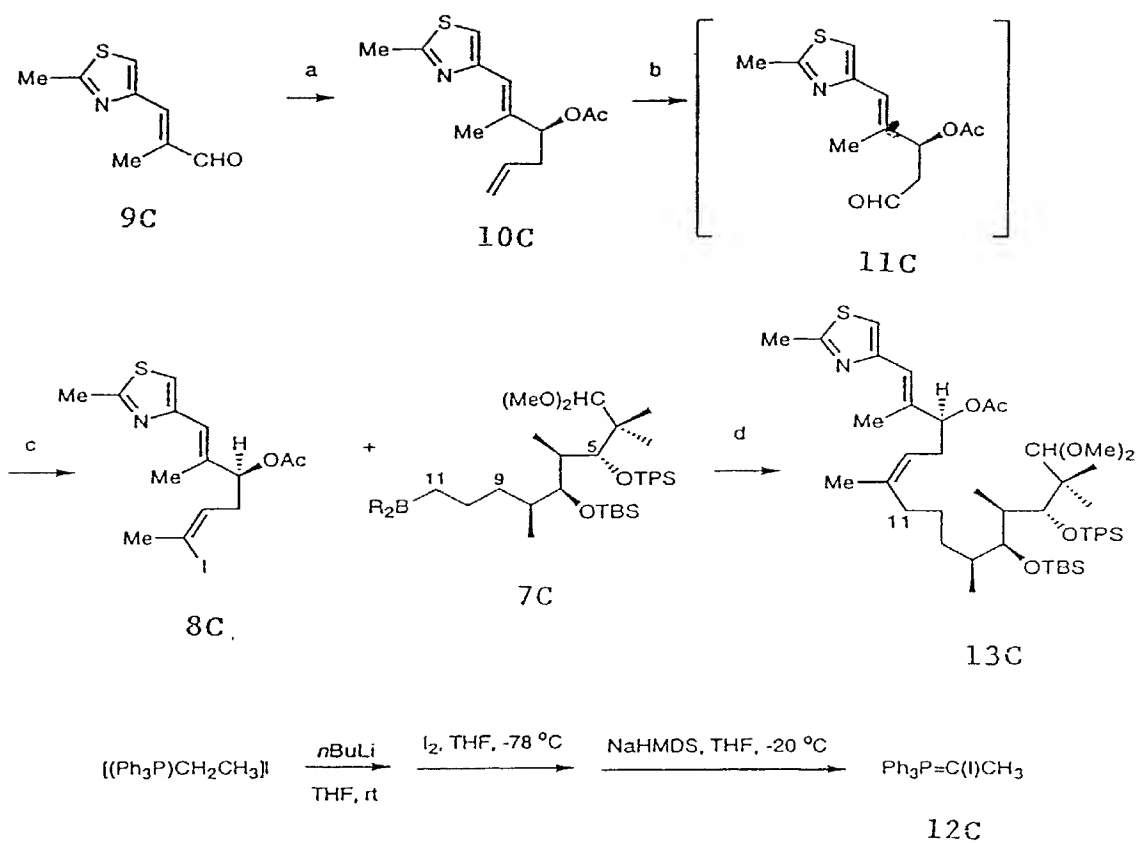


Figure 16

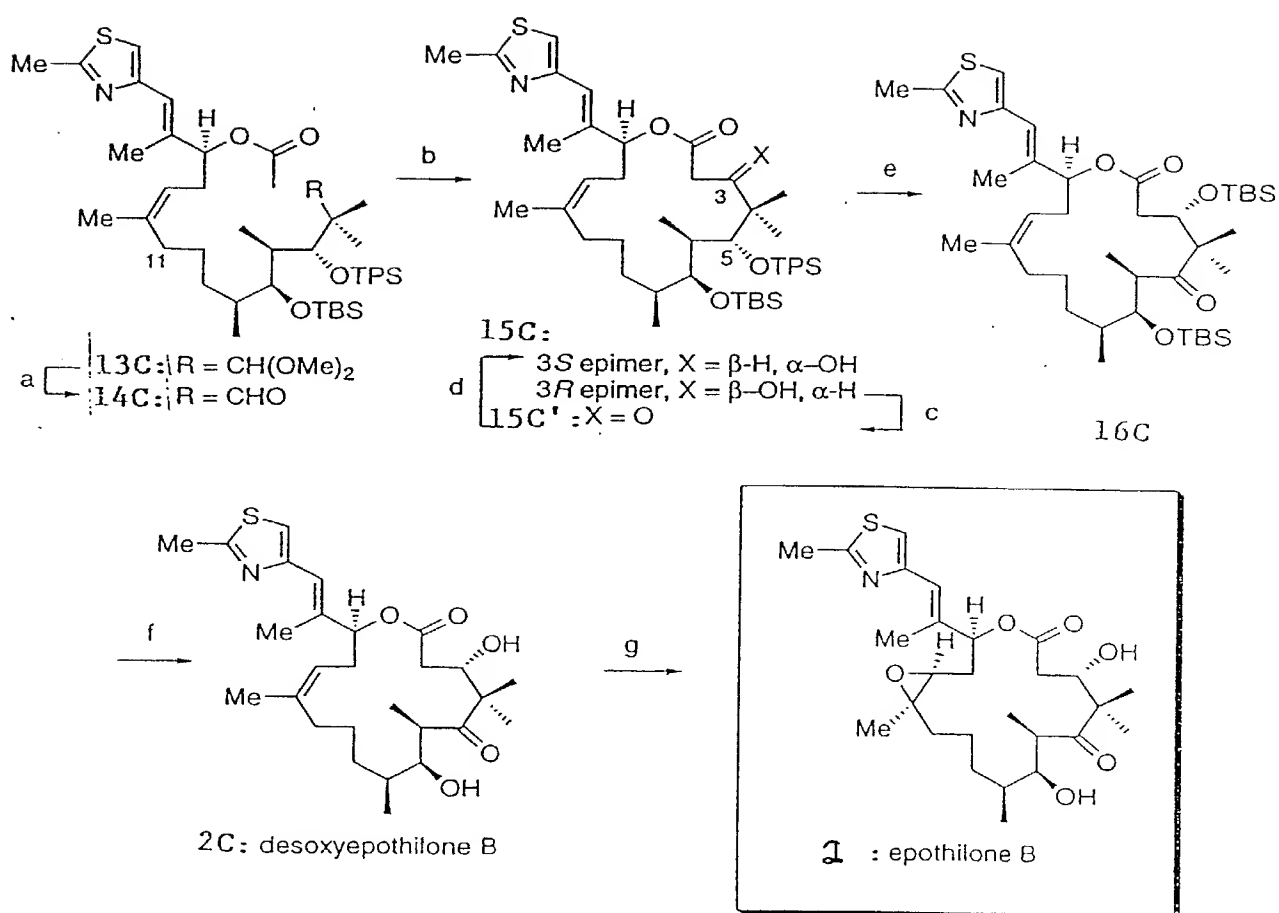


Figure 17

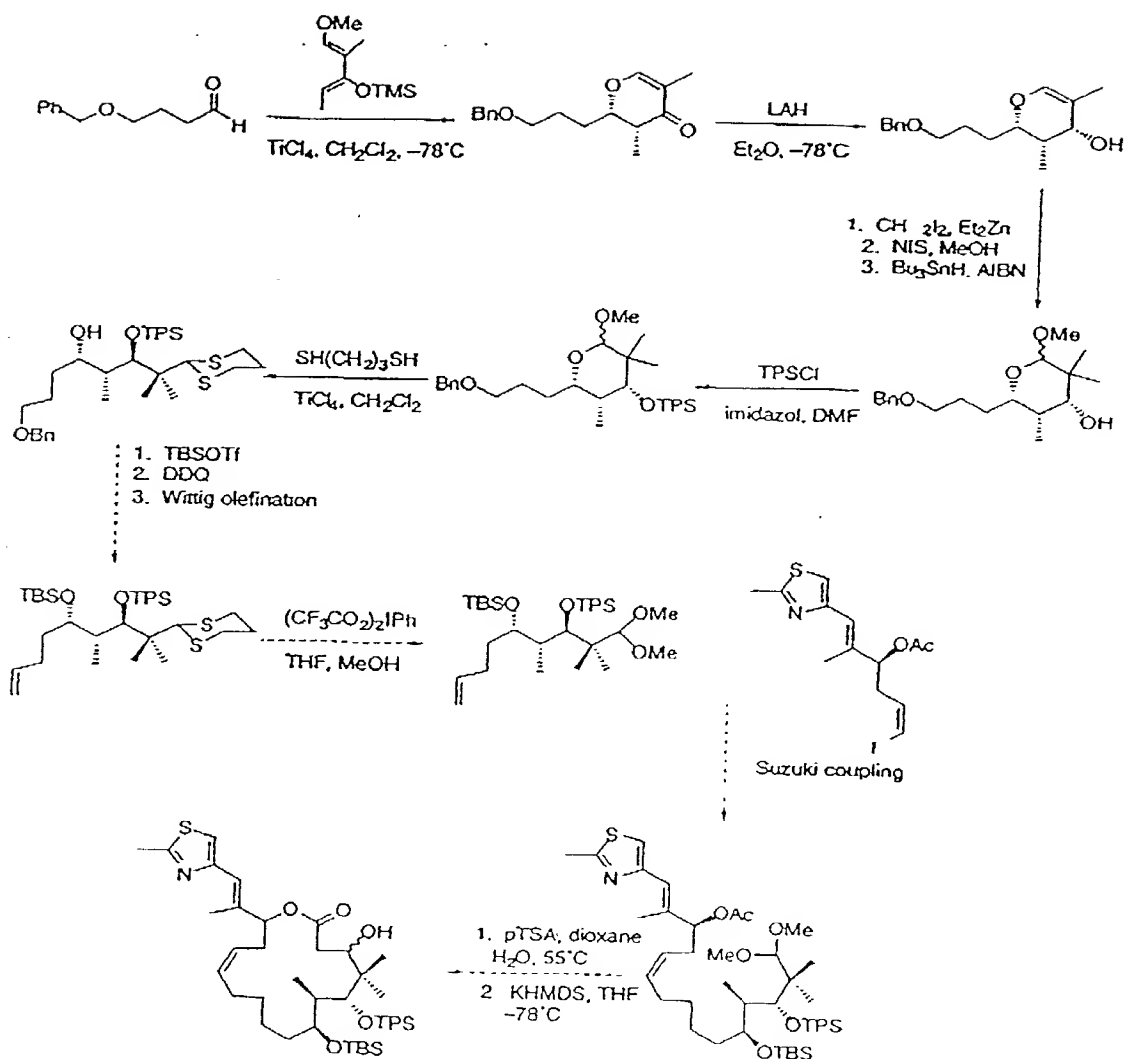


Figure 18

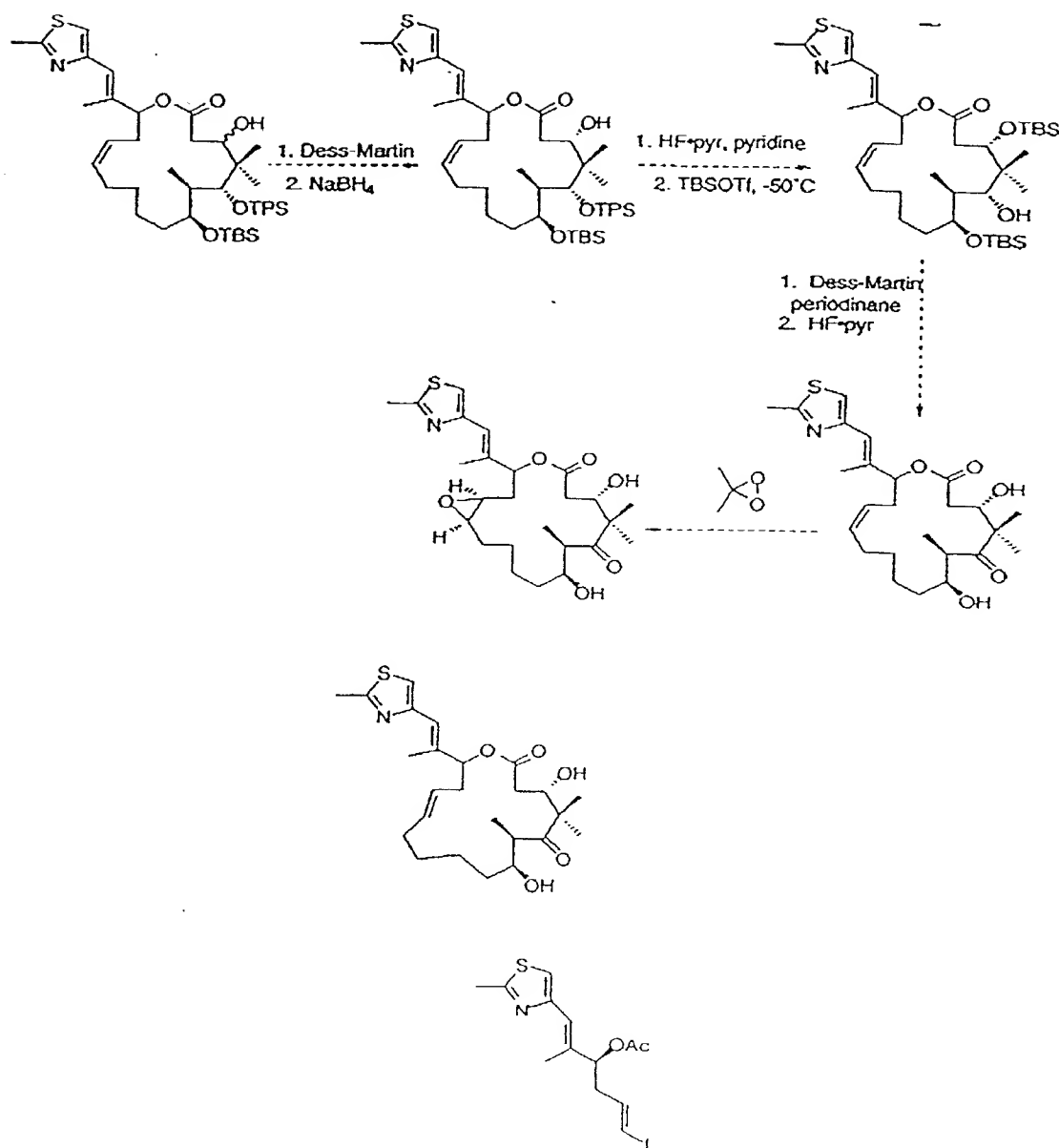


Figure 19

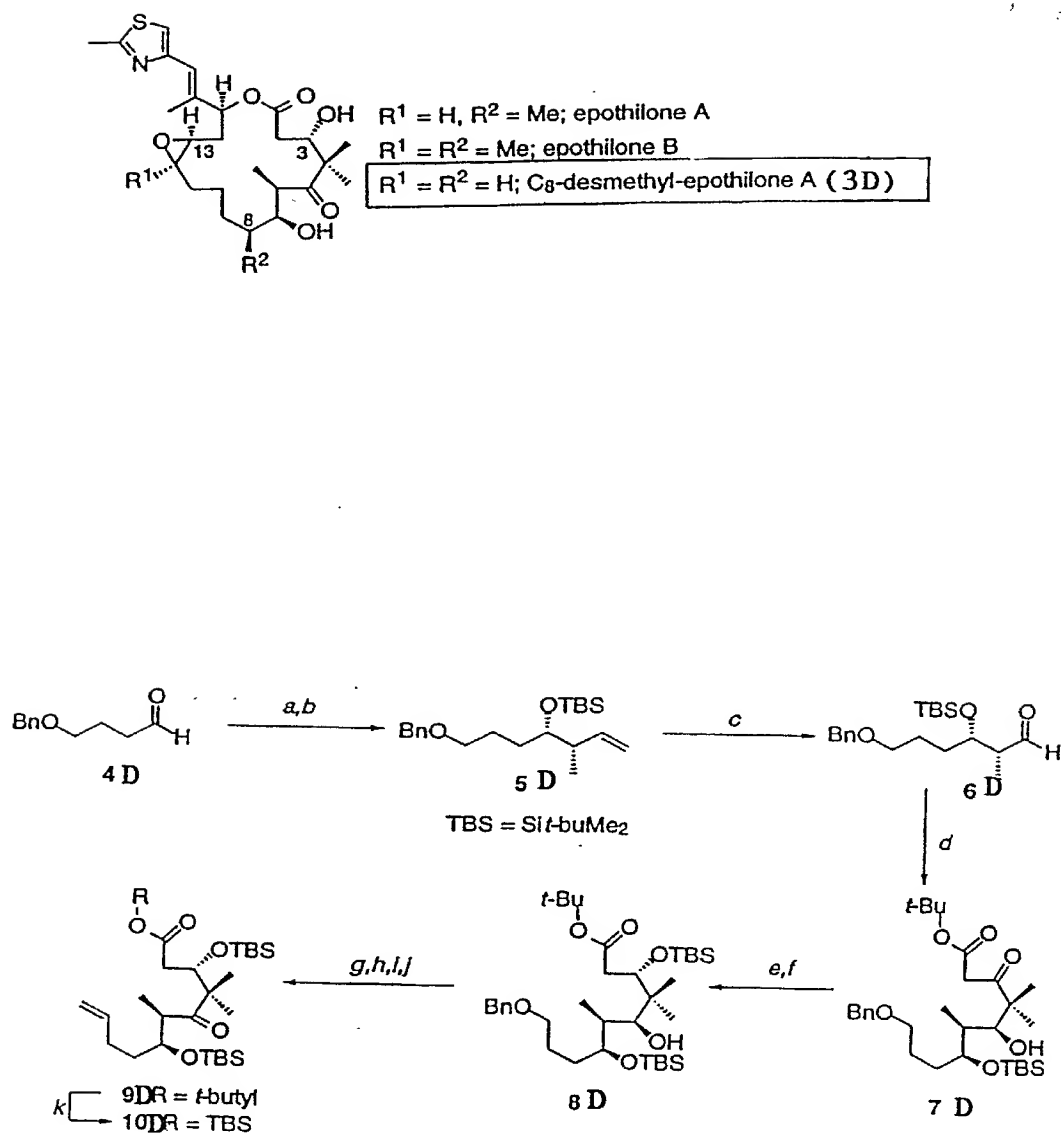


FIGURE 20

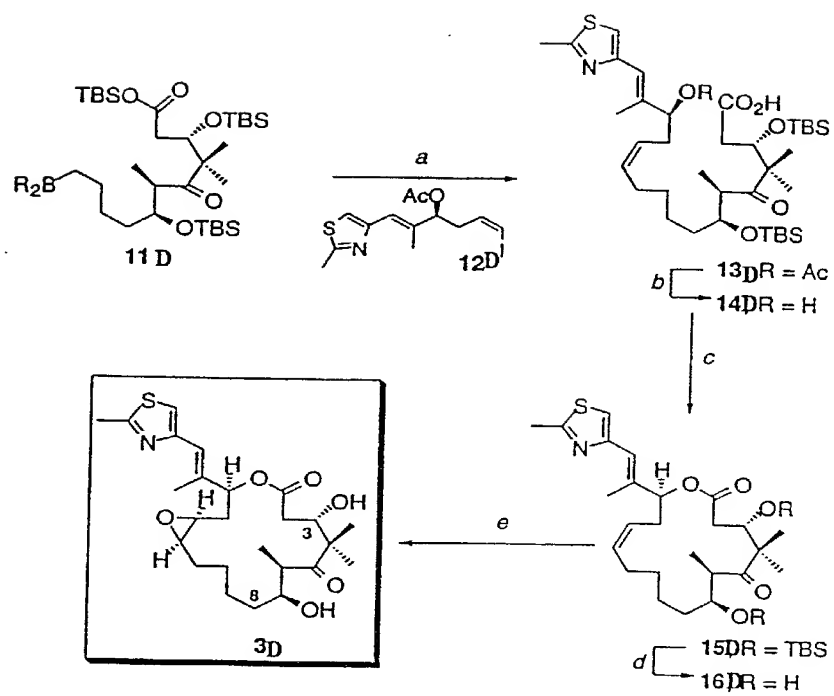


FIGURE 21

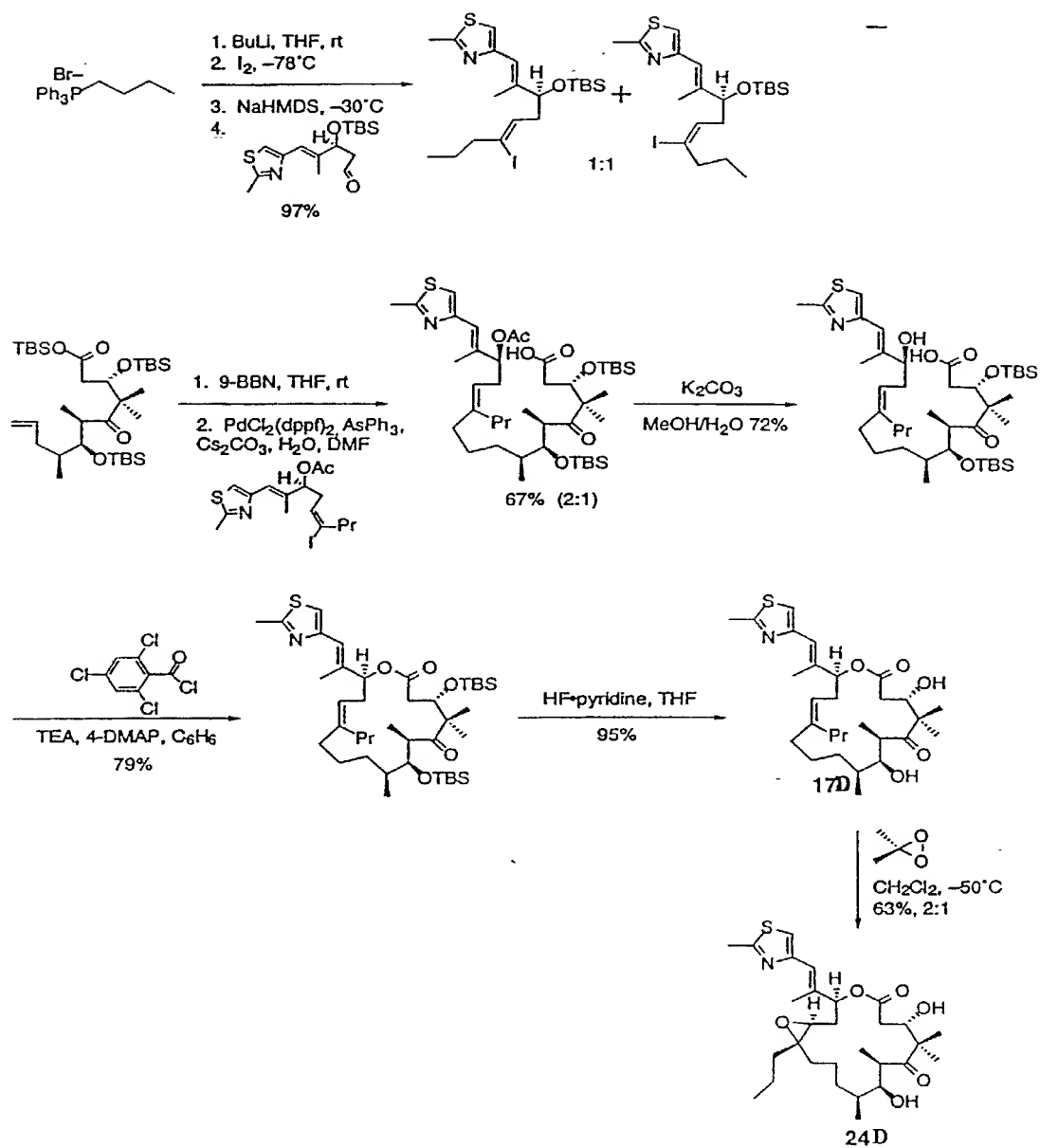


FIGURE 23

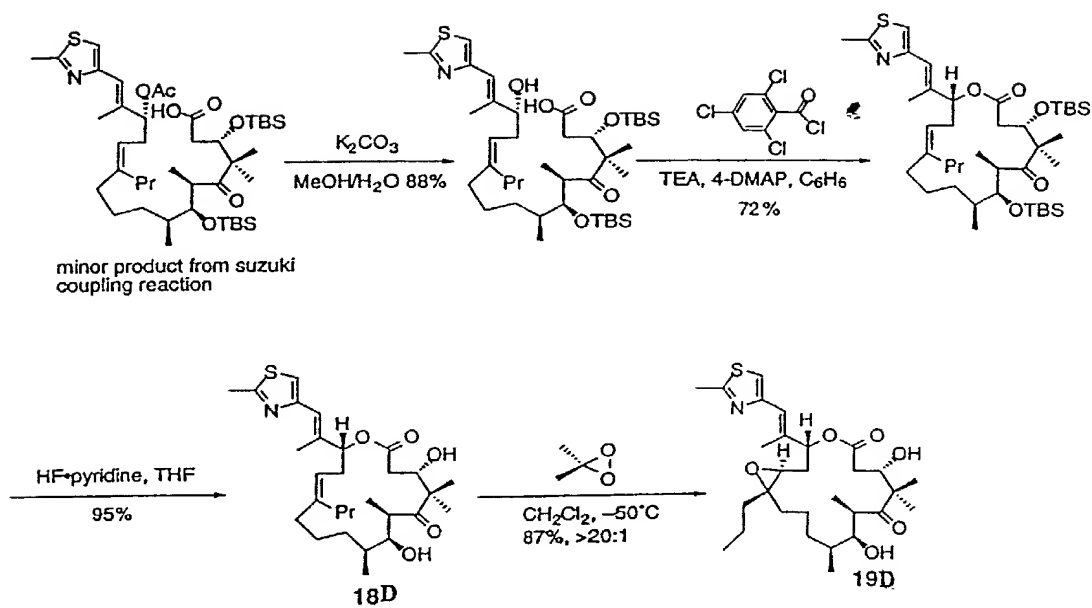


FIGURE 24

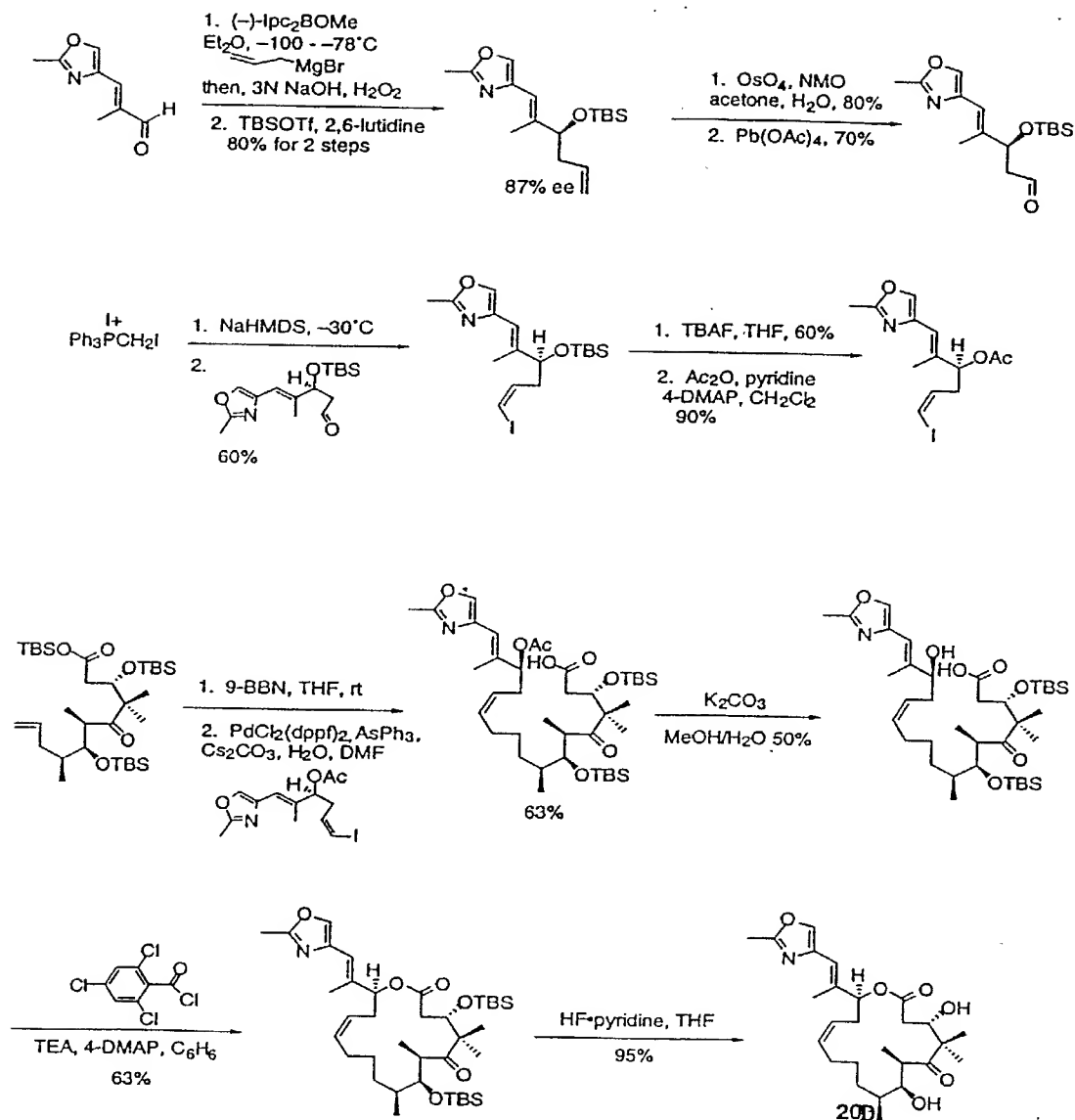


FIGURE 25

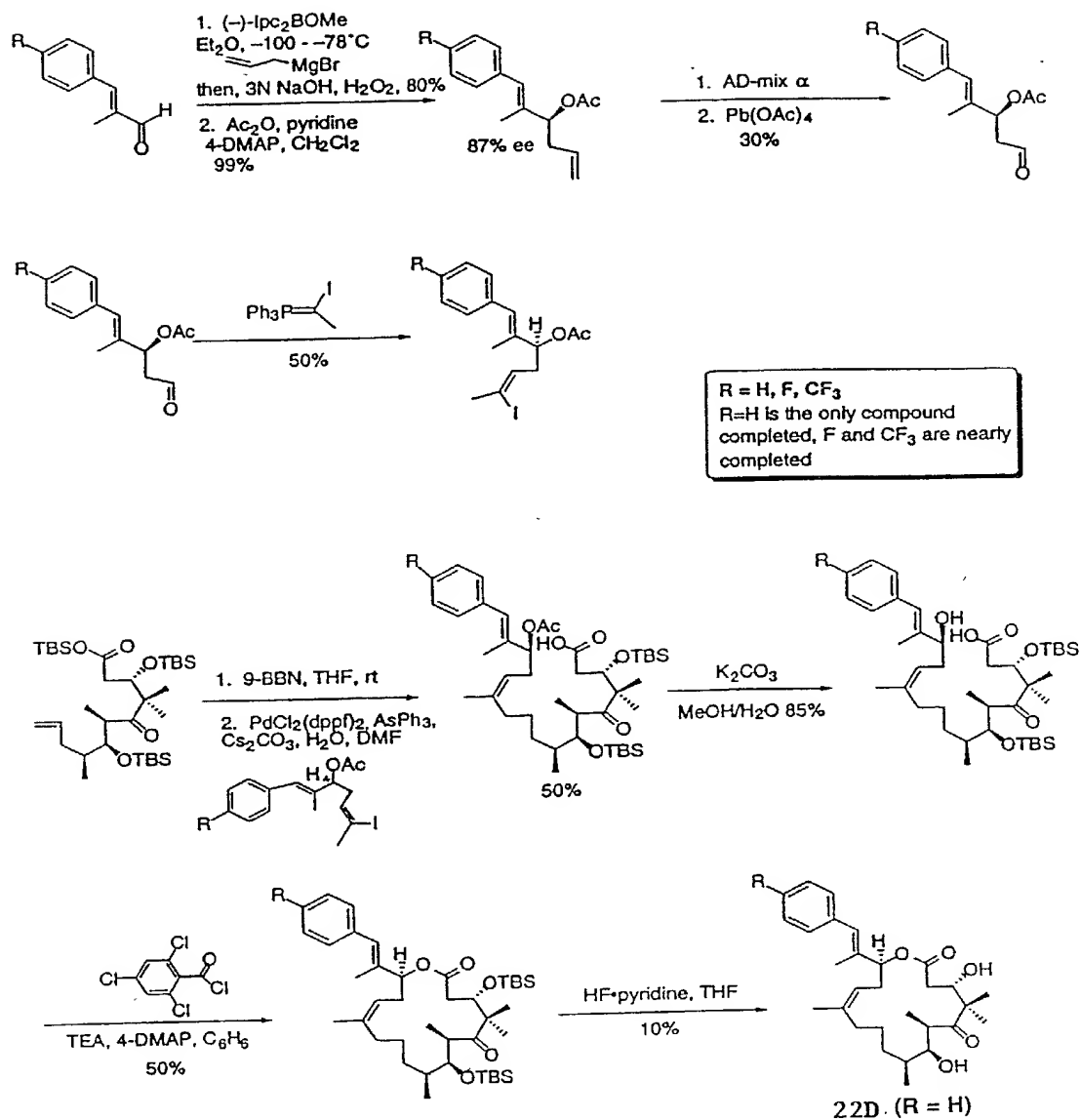


FIGURE 26

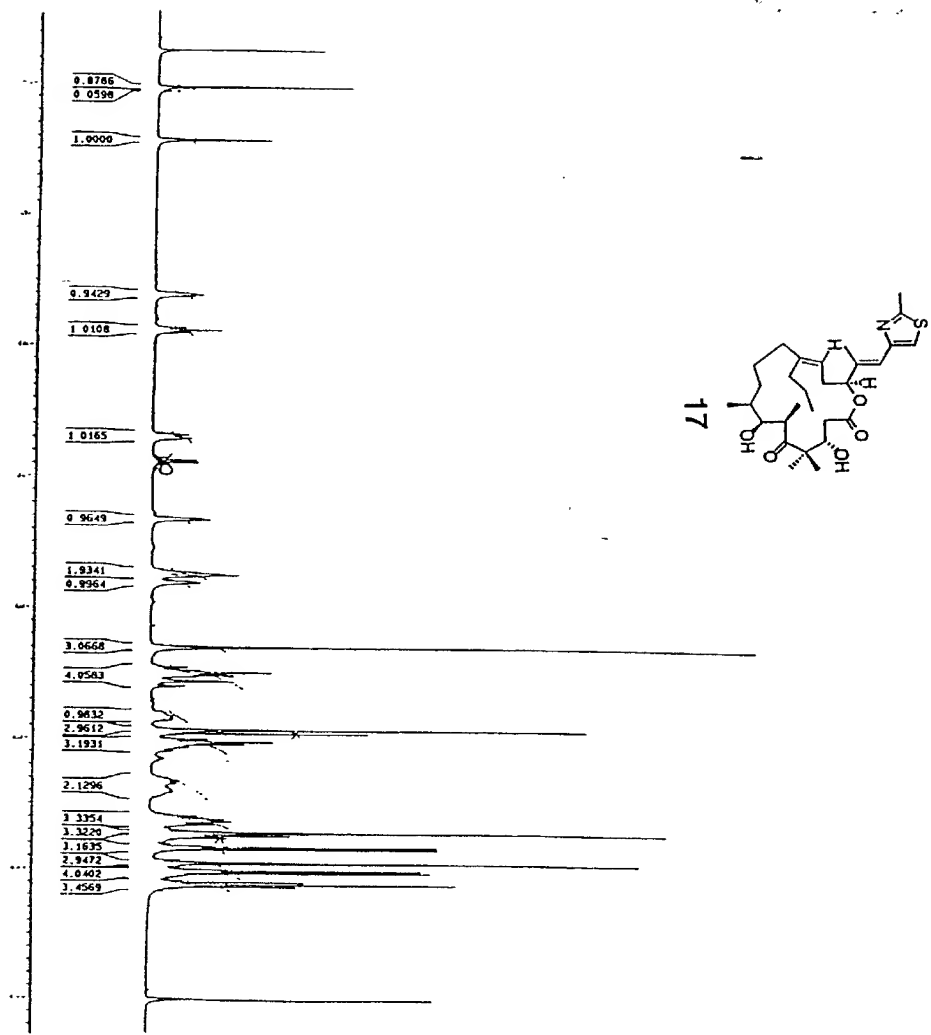


FIGURE 29

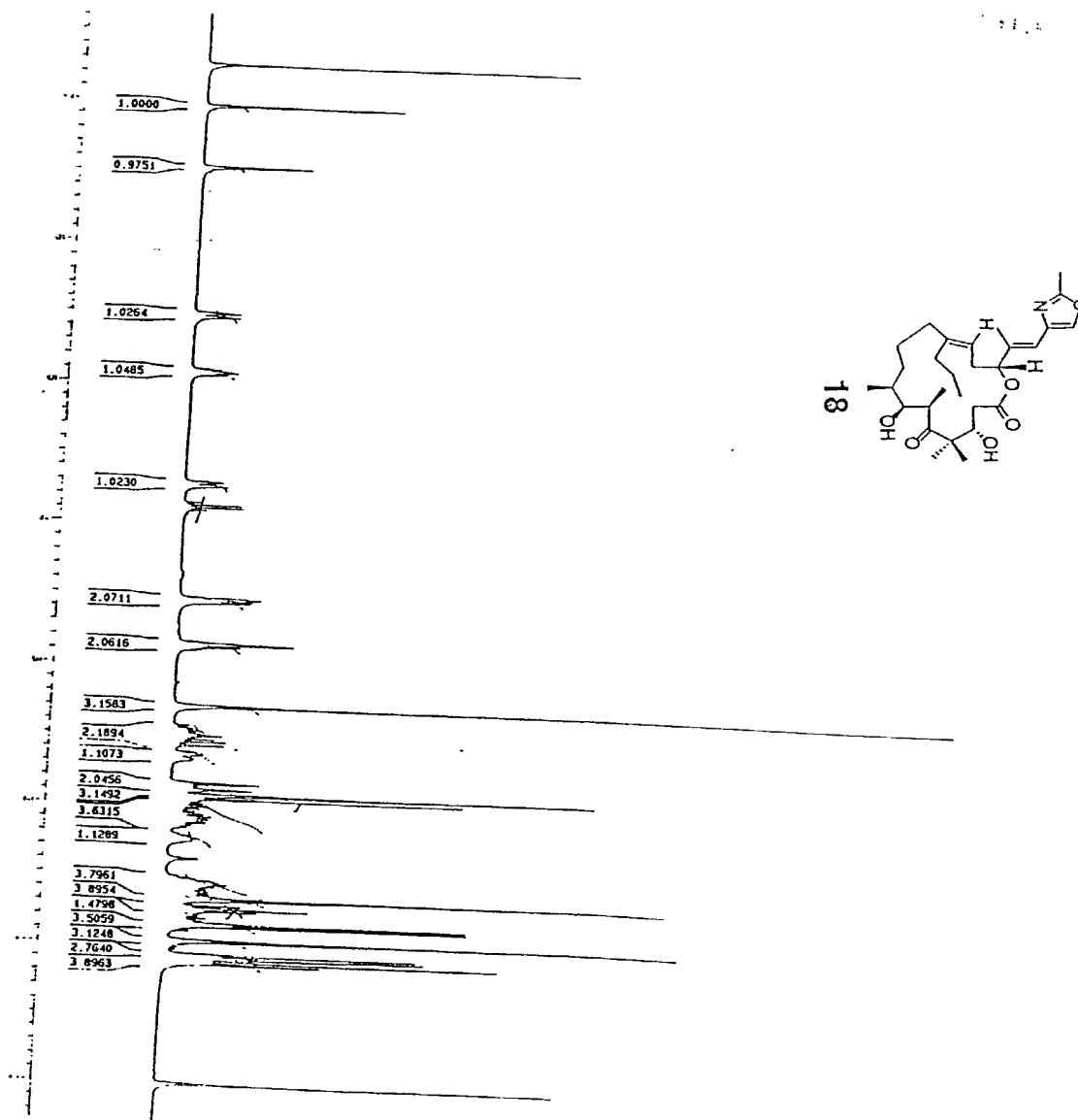


FIGURE 30

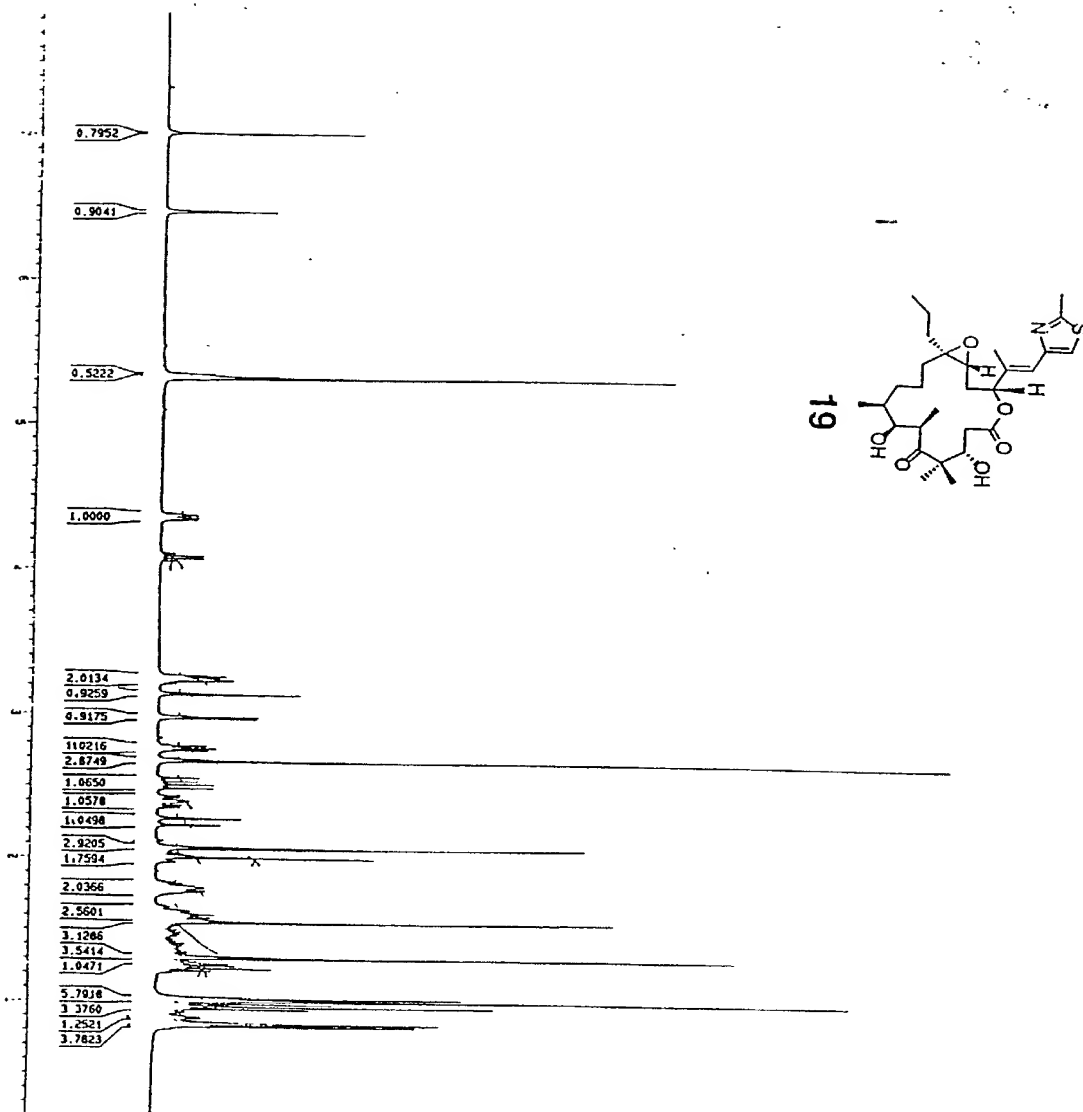
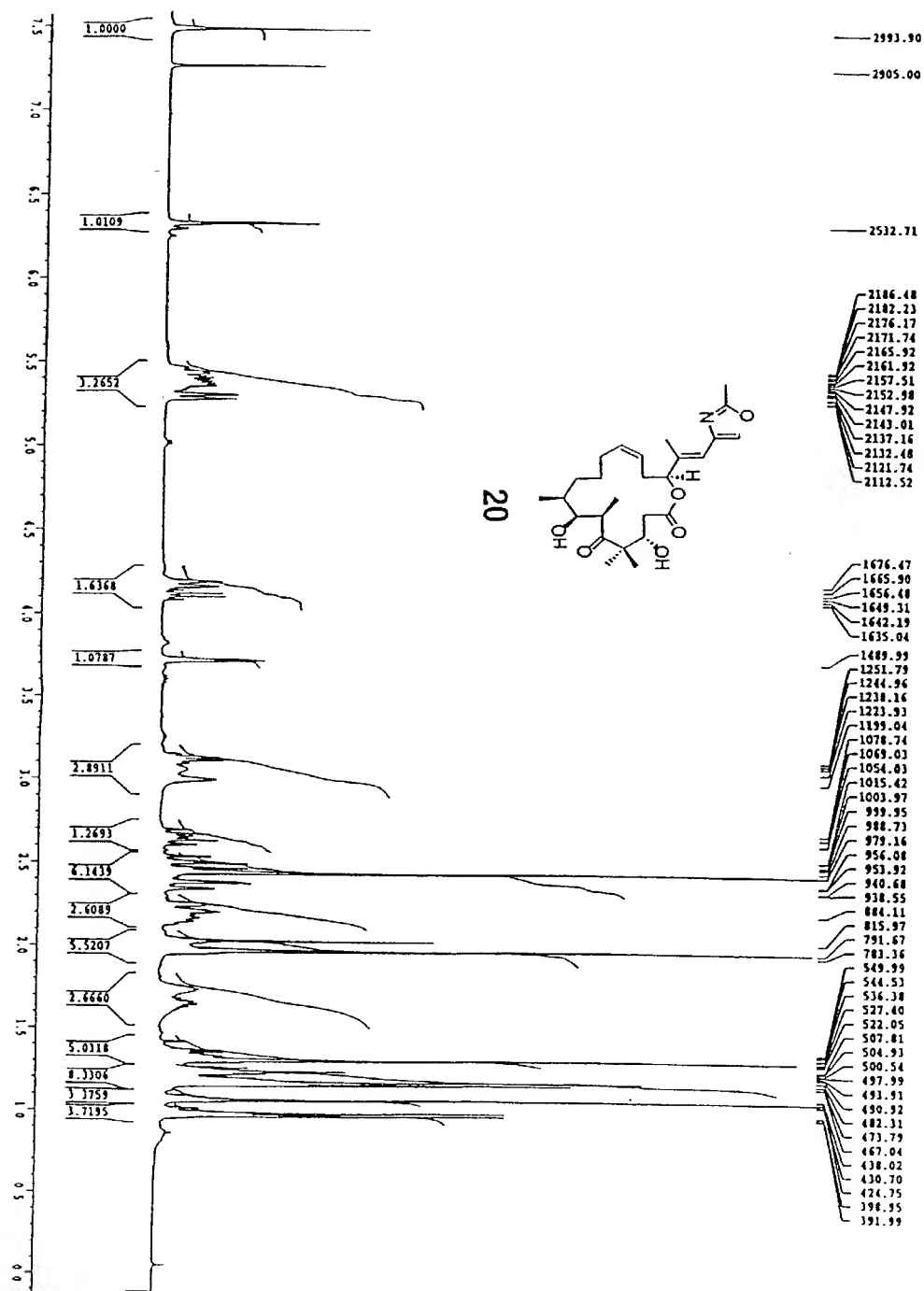


FIGURE 31



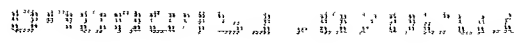


FIGURE 33

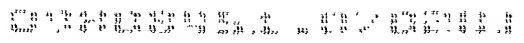


FIGURE 34



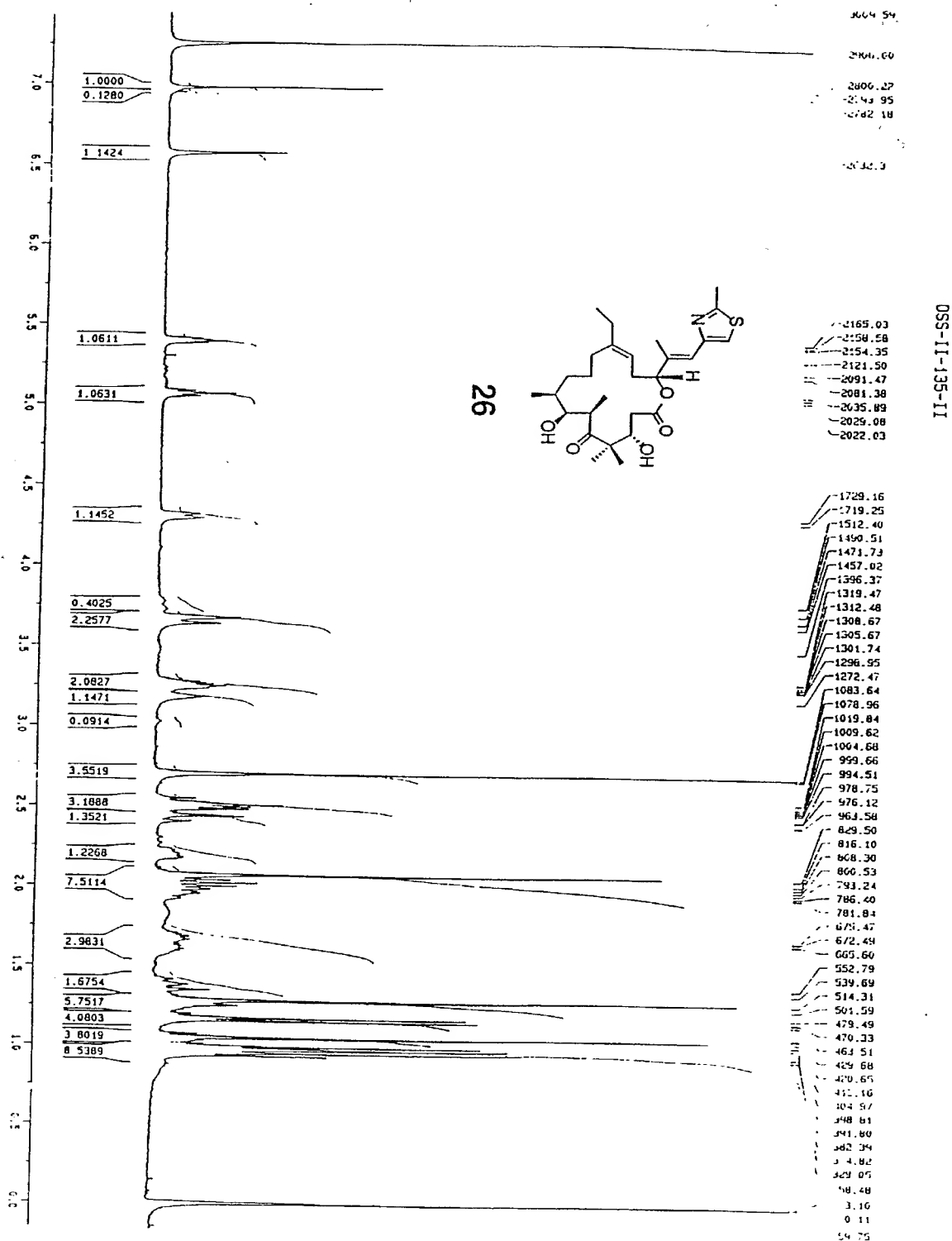


FIGURE 36

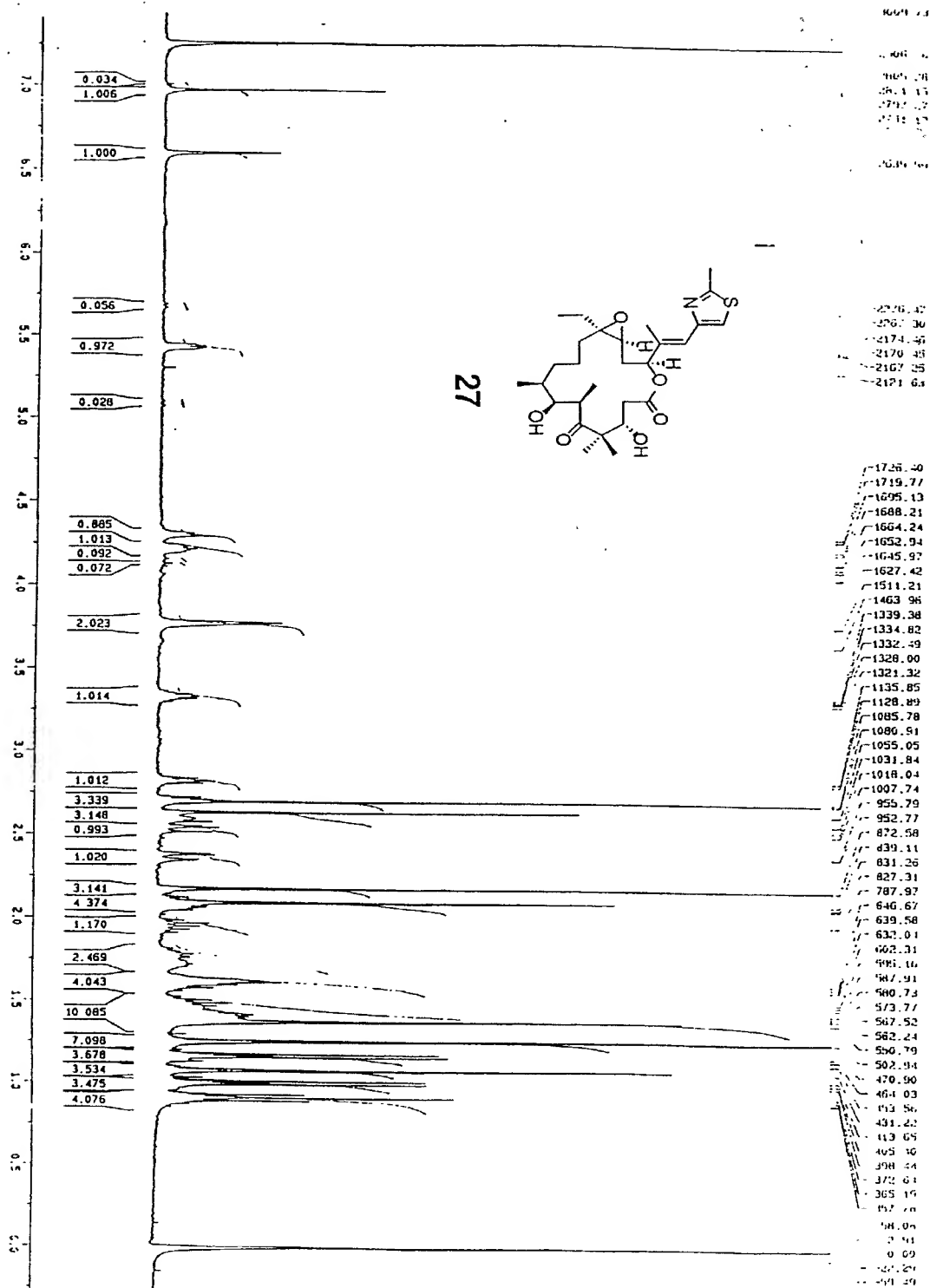
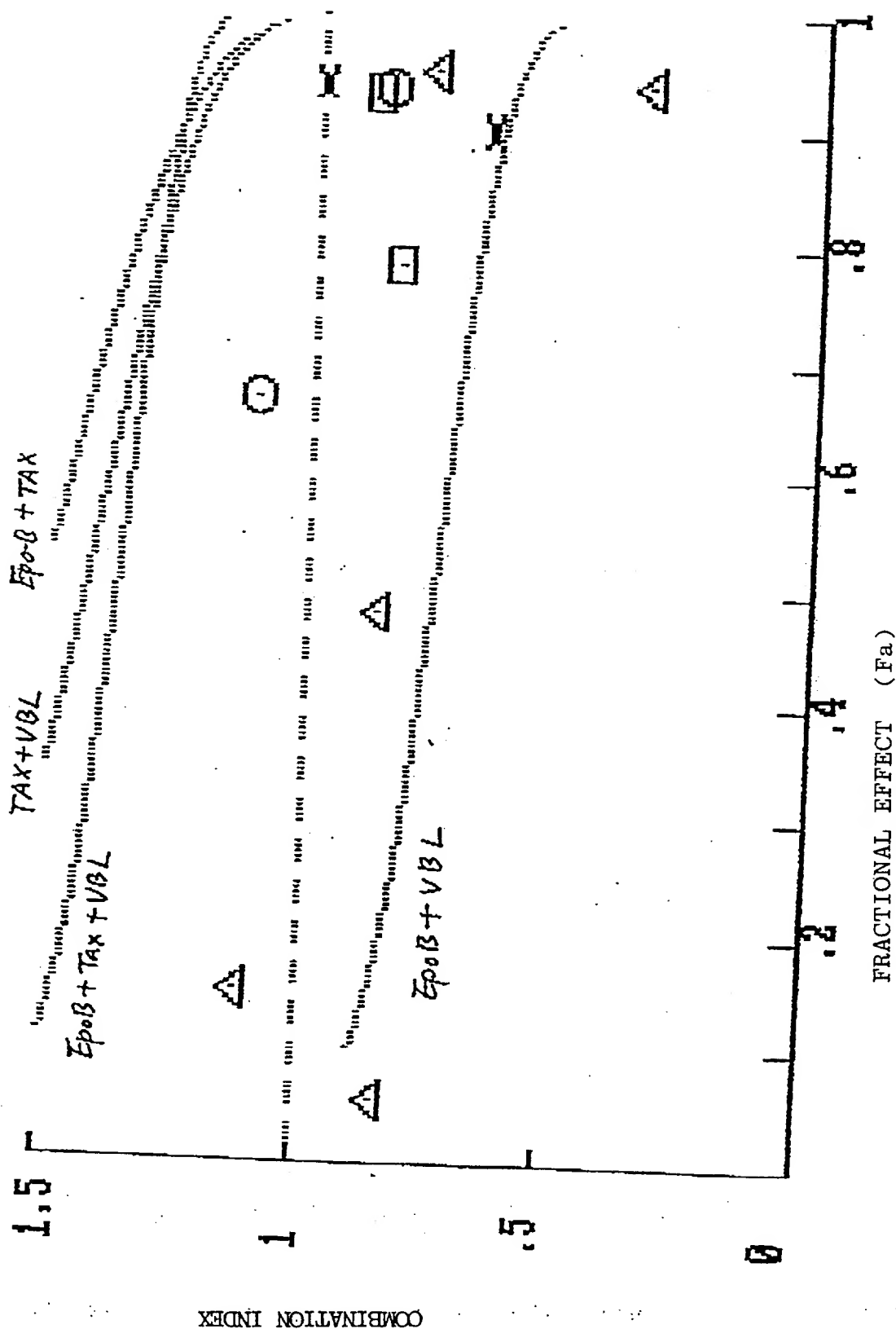


FIGURE 37

Figure 38



The chemical structure of compound 6 is a large macrocycle. It features a thiazole ring substituted with a methyl group at position 4. This thiazole is connected via a vinyl bridge to a carbon atom that is part of an epoxide ring. The macrocycle also contains several other stereocenters, including two hydroxyl groups and a ketone function, all with defined stereochemistry indicated by wedges and dashes.

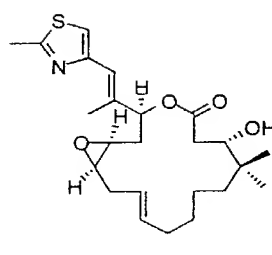
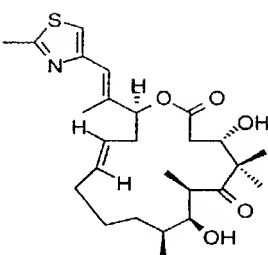
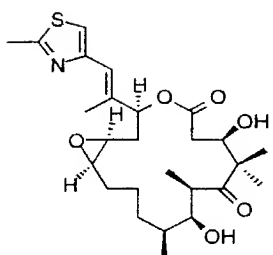
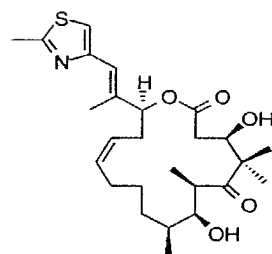
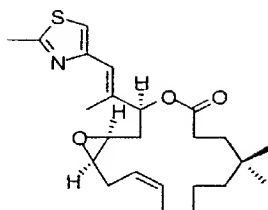
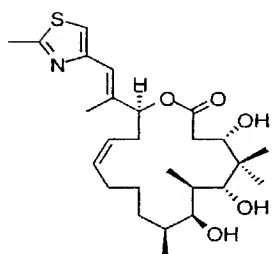
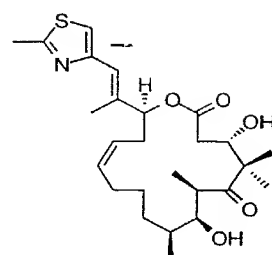
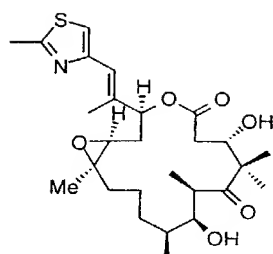
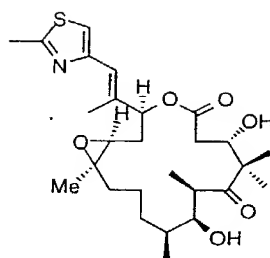


Fig. 39



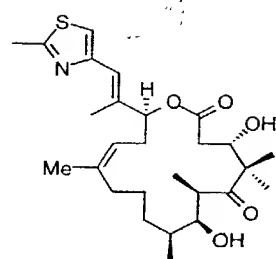
synthetic epothilone B

8
(0.00044)
[0.0026]



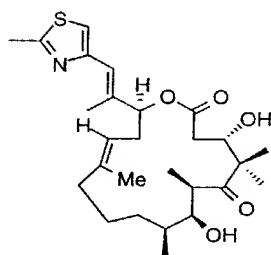
natural epothilone B

9
(0.00017)
[0.0012]

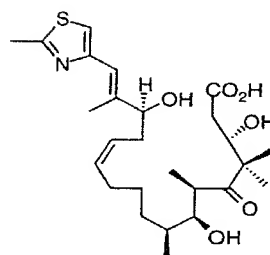


desoxyepothilone B

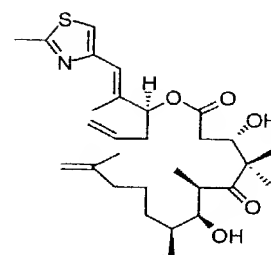
10
(0.0095)
[0.017]



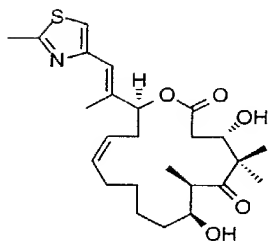
11
(0.090)
[0.262]



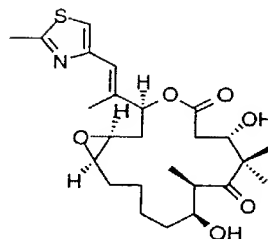
12
(0.79)
[>5]



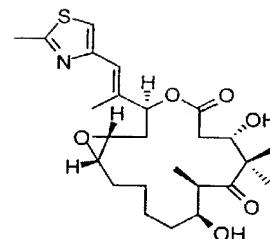
13
(11.53)
[5.63]



14
(5.42)
[5.75]



15
(0.96)
[5.95]



16
(7.47)
[16.48]

Fig. 40

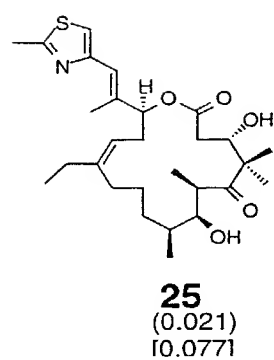
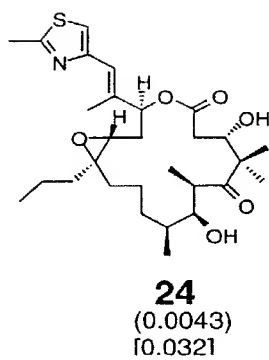
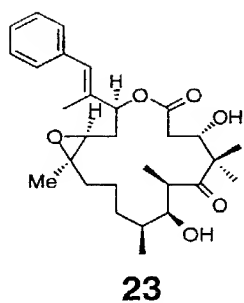
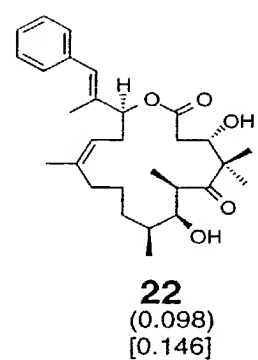
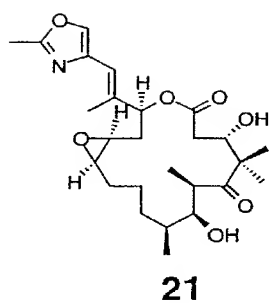
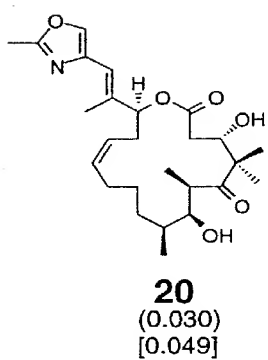
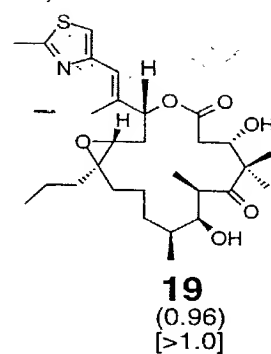
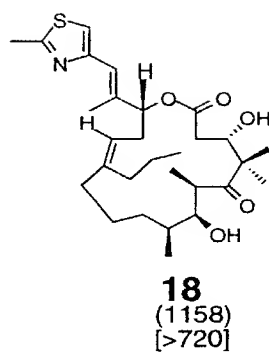
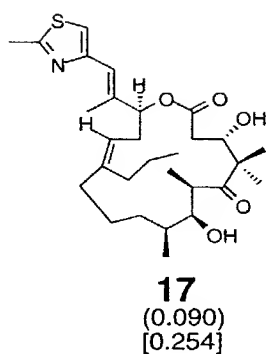


Fig. 41

The chemical structure shows a complex molecule with a thiazole ring substituted with a methyl group and a vinyl group. This vinyl group is part of a larger system that includes a cyclopropane ring. A carboxylic acid group is also present, along with several hydroxyl groups and a long alkyl chain. Stereochemistry is indicated with wedges and dashes.

The chemical structure shows a complex molecule with a thiazole ring substituted with a methyl group. This ring is connected via a double bond to a chiral center. This center is part of a chain that includes a carboxylic acid group and another chiral center with a hydroxyl group. A long alkyl chain is also attached to the structure.

[illegible]Cc1nc(C=C[C@H](C)OC(=O)[C@H](O)[C@@H](C)C(=O)[C@H](O)[C@H](C)CC[C@H](C)CC[C@H](C)C2OCCO2)c(C)cs1

Fig. 42(A)

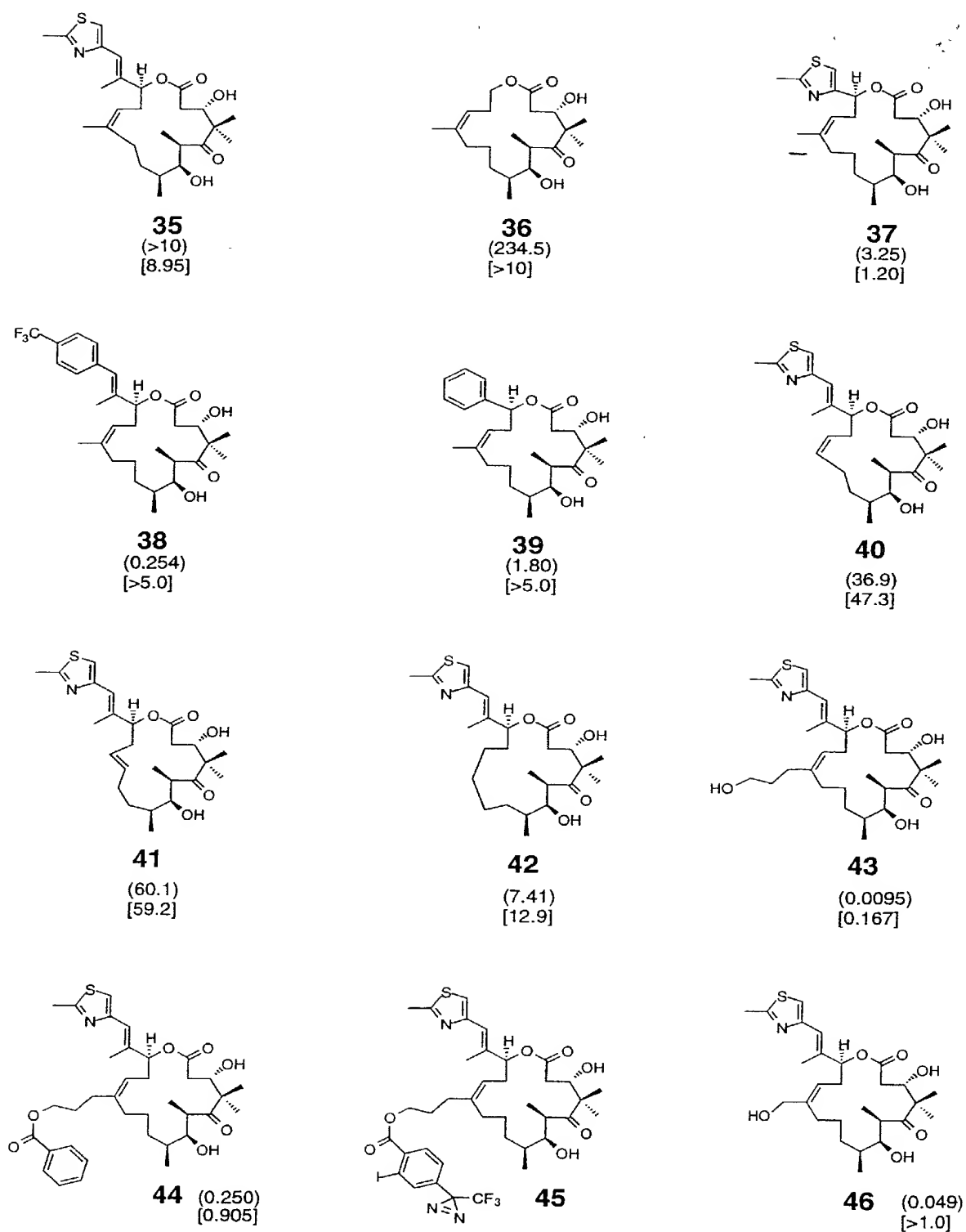


Fig. 42(B)

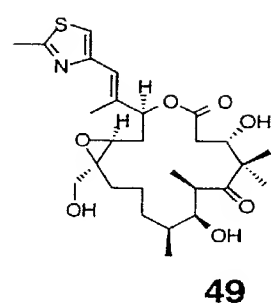
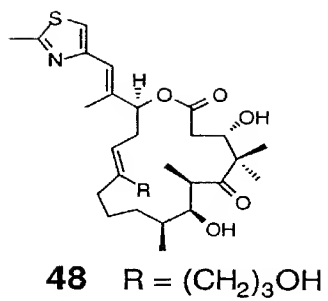
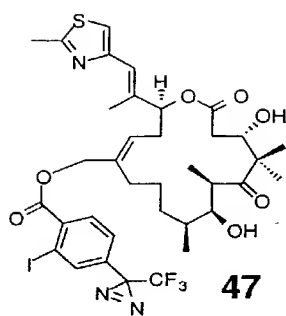


Fig. 42(C)

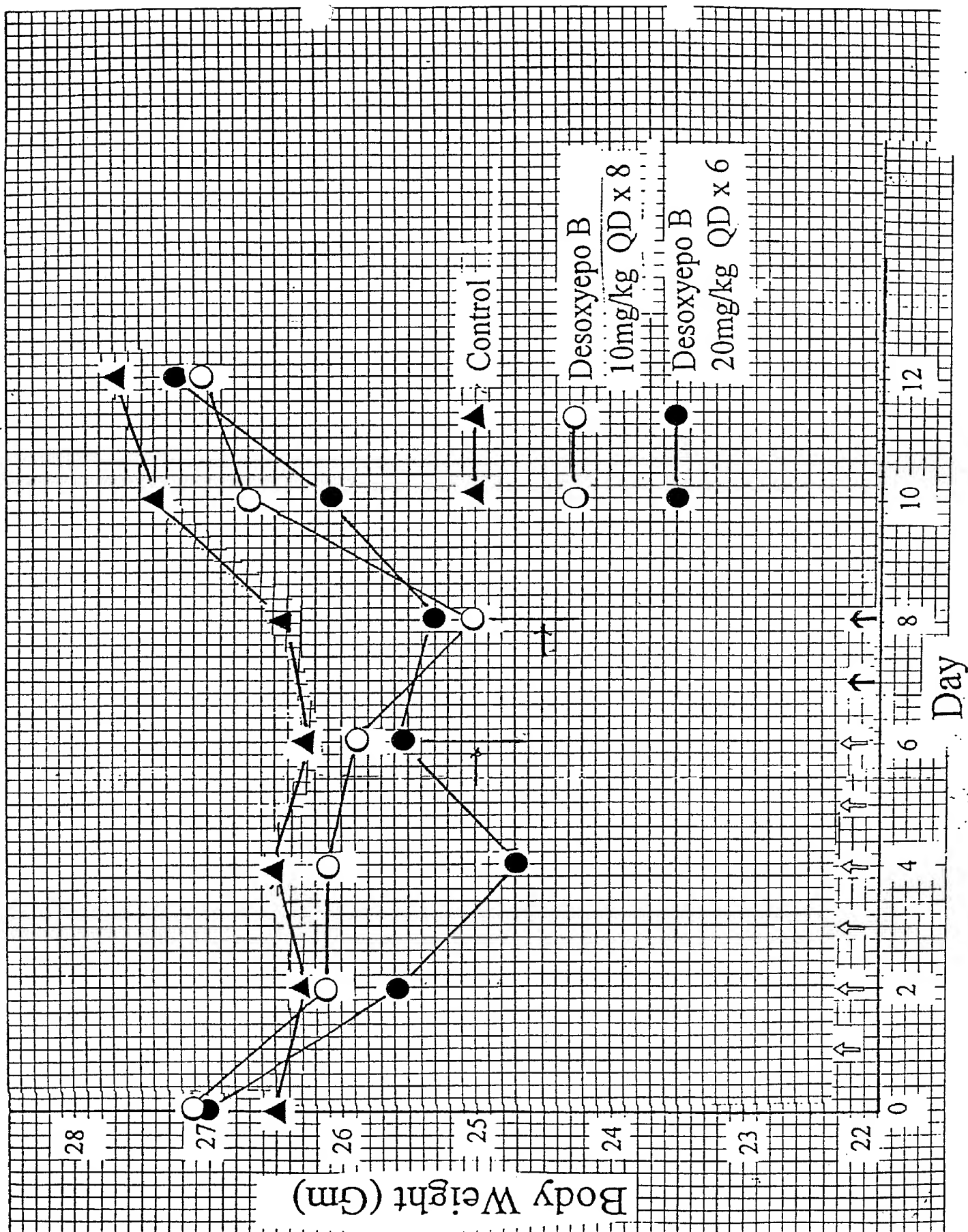


Fig. 44(A)

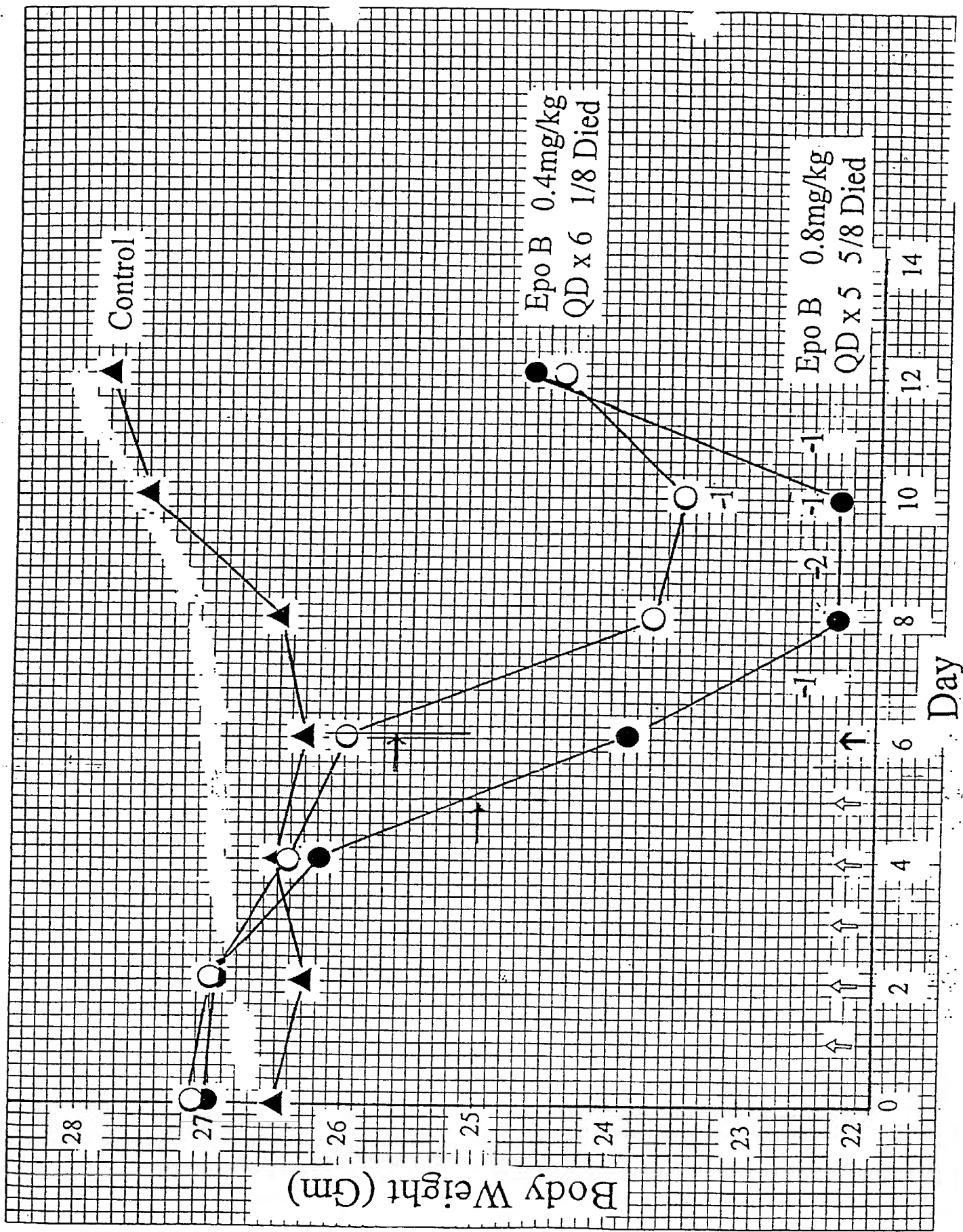
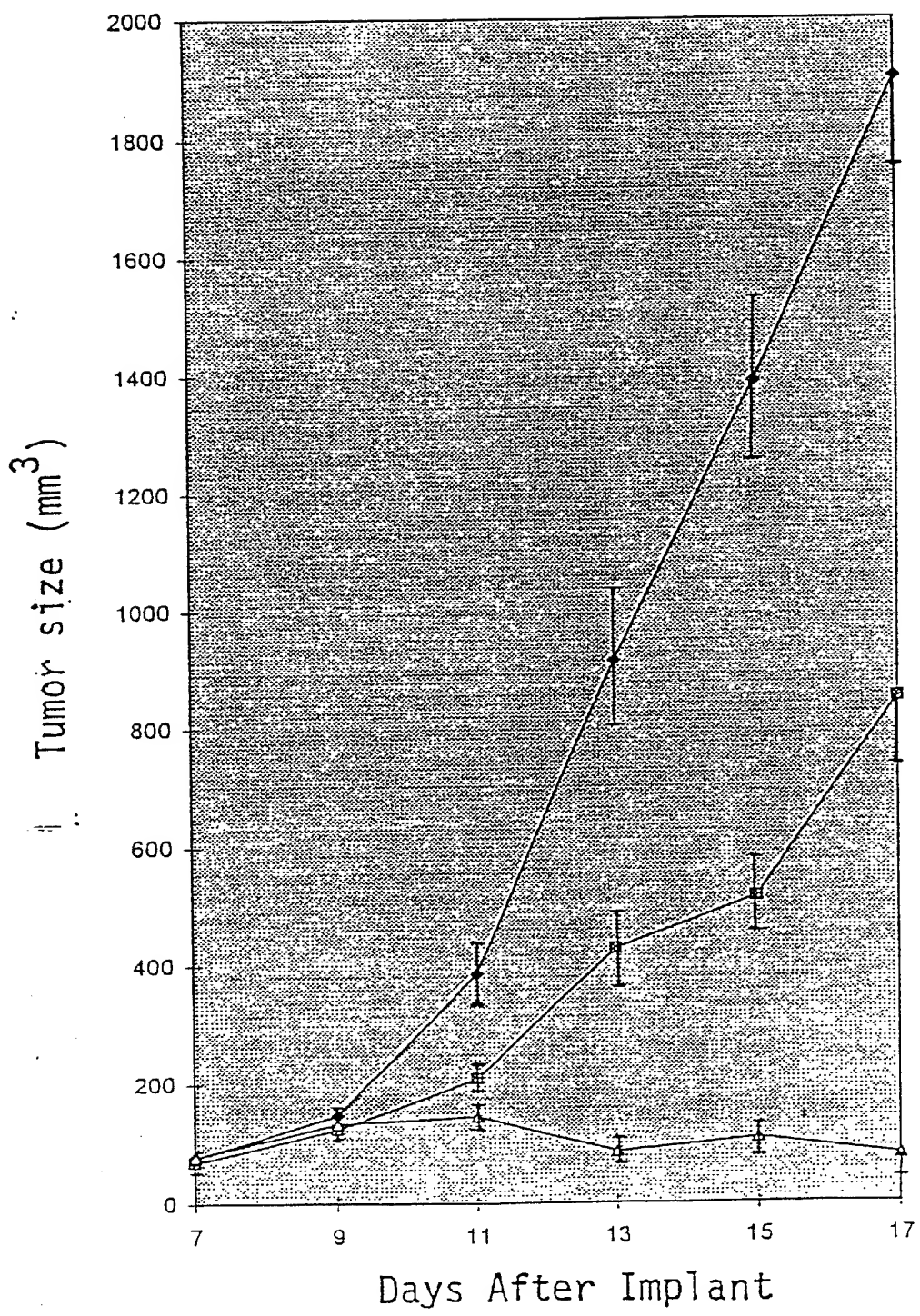
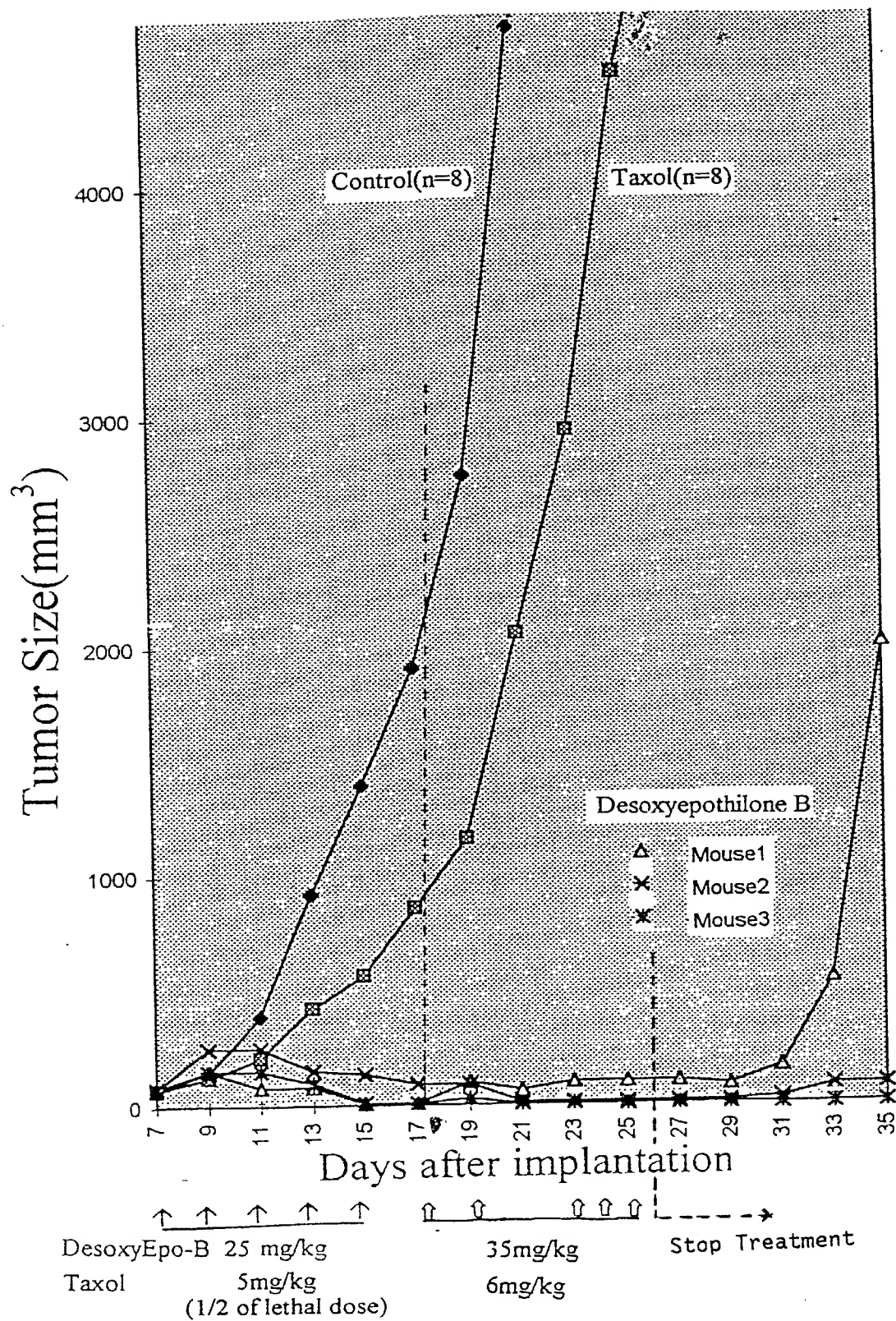


Fig. 44(B)

#####

Fig. 45(A)





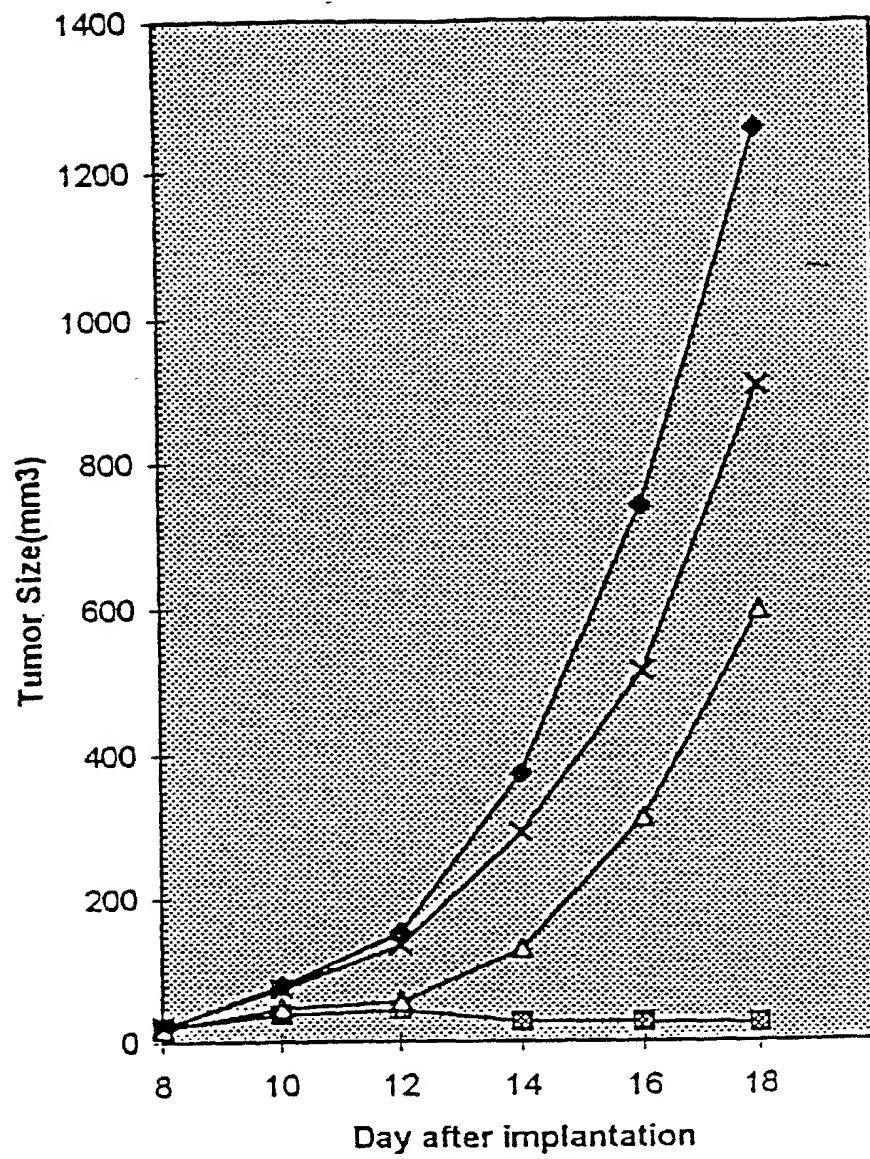


Fig. 46

Fig. 47

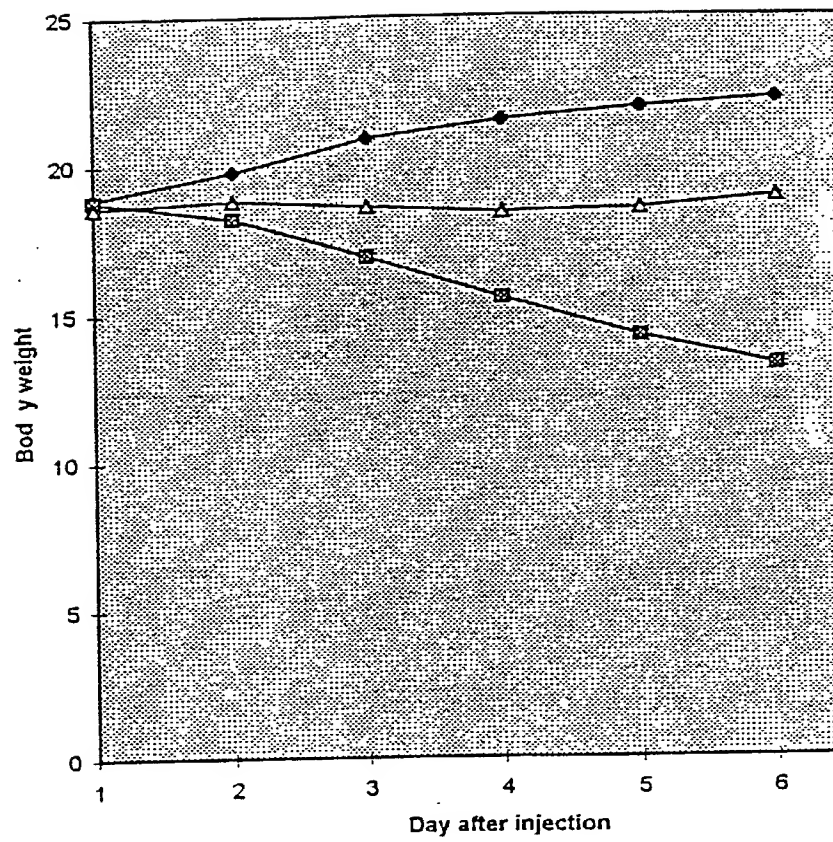


Fig. 48

Fig. 48

45

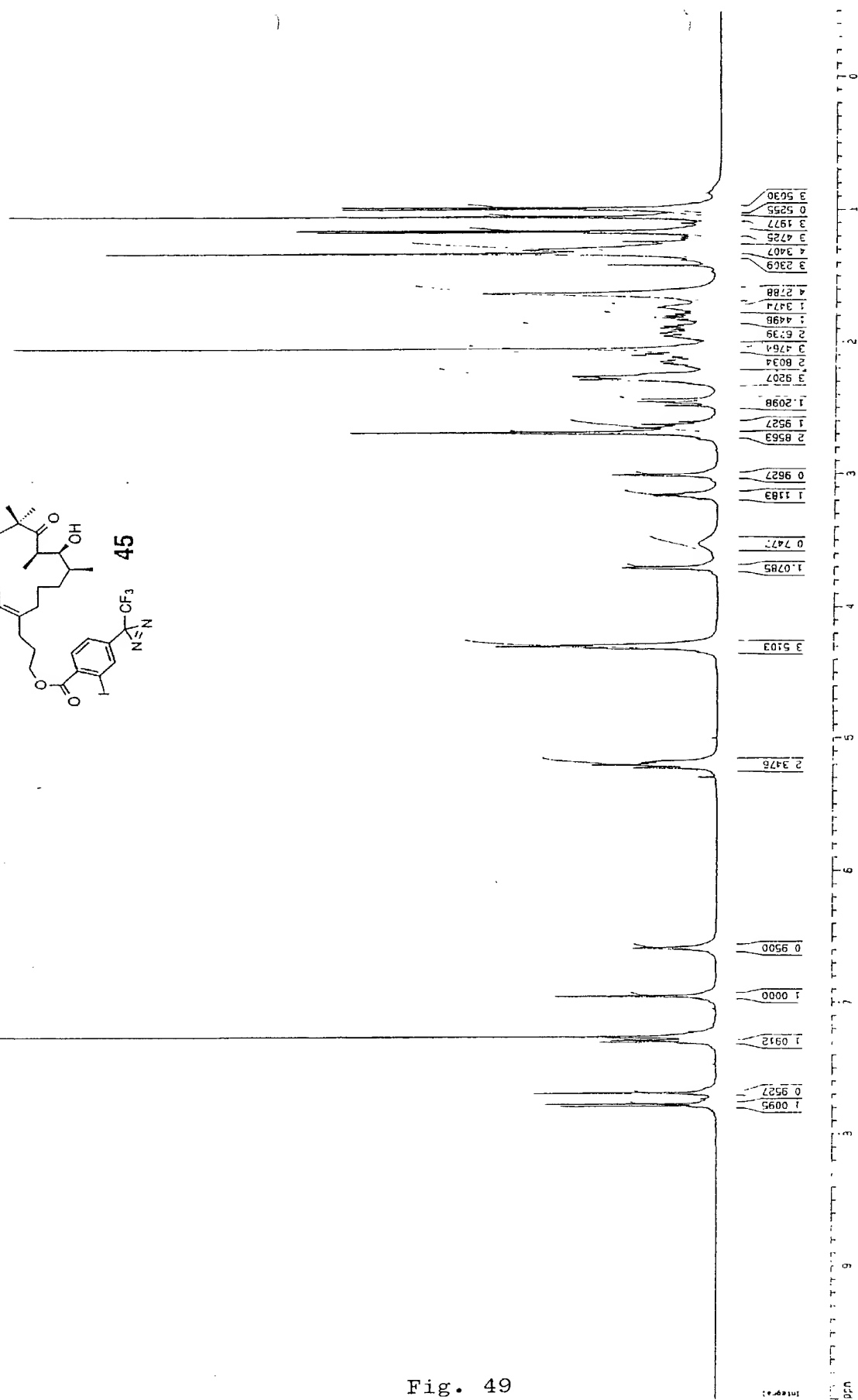
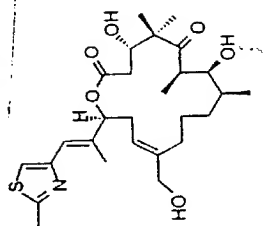


Fig. 49



46

400 MHz, cdCl_3 , rt.

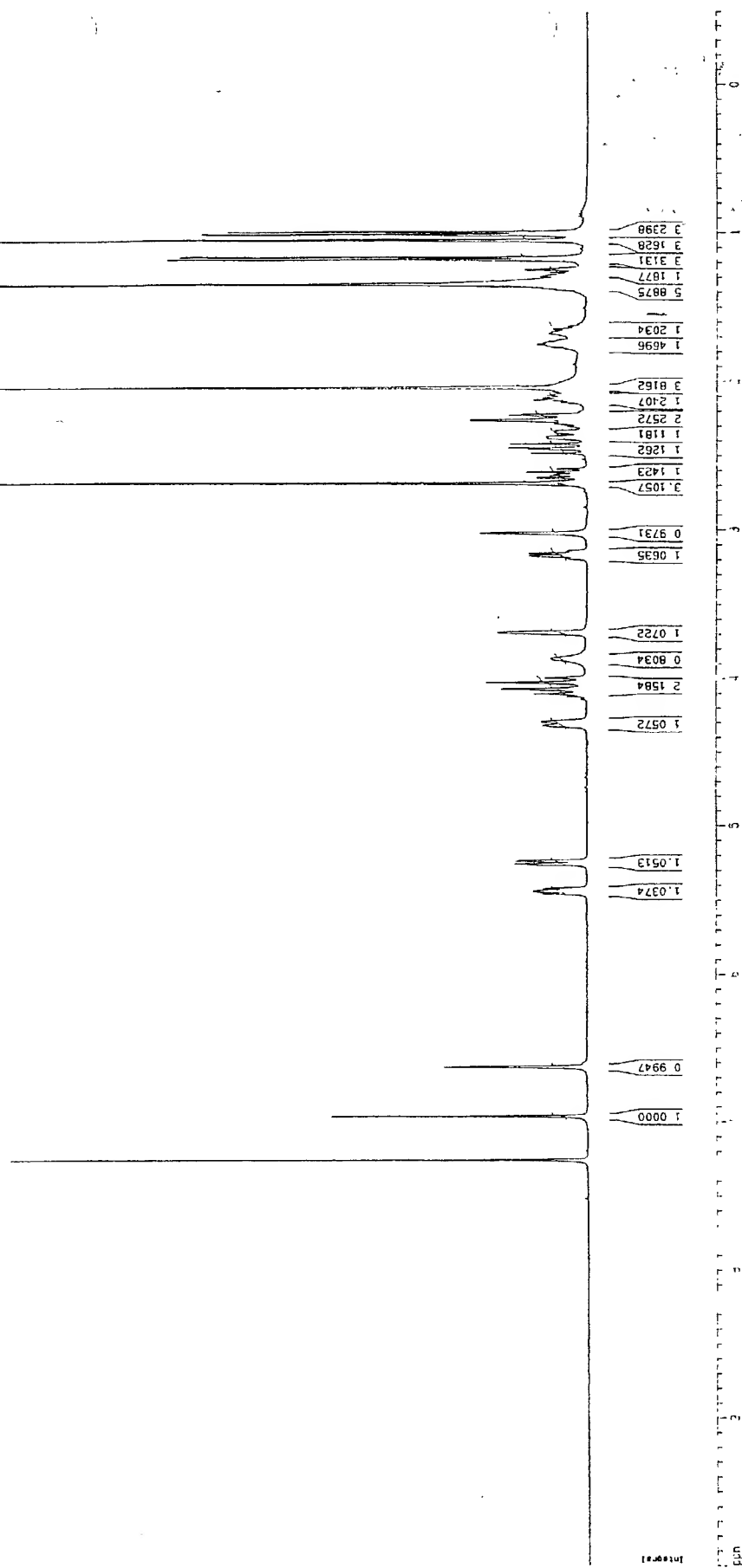


Fig. 50

III AC264
11/12/97

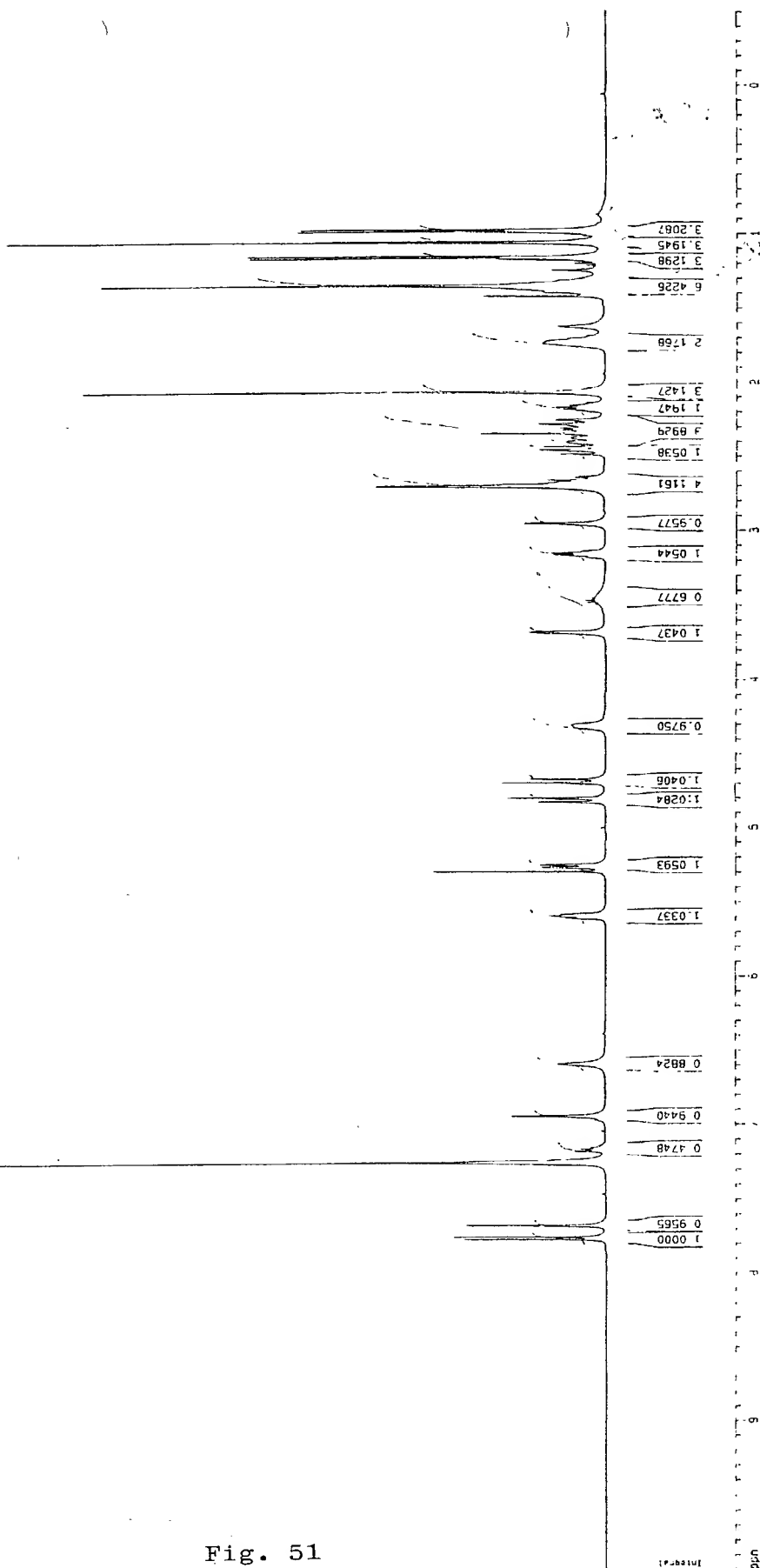


Fig. 51

